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The trend of modern legislation, both national and state, has been and is to discourage and, indeed, to destroy monopolies of every kind and description.

The policy of our government, if it has not always been, is certainly now to encourage and promote free and unhampered competition in all classes of business and in the sale of all sorts of commodities, particularly the necessaries of life.

To this end there has been added to our statutes, federal and state, a variety of wholesome laws, whose aim is to prevent or destroy and punish penally what has been colloquially, but in many instances justly, characterized as predatory trusts and combinations—in other words, monopolies which could control the markets of the world in their lines of activity and thus impose upon the consumers the most outrageous and even unbearable burdens.

At this deplorable condition, we say, modern legislation, sustained by a powerful and unmistakable common sentiment, has aimed its well charged batteries.—From decision of California District Court of Appeals in favor of Postal Telegraph vs. Western Union Telegraph.

Honor Thrown In.

"Shaking down a trust" may be profitable, but it is a dangerous business. The Bell telephone people, in particular, seldom overlook a chance to leave those who try it upon them with a besmirched reputation and an injured credit—the continuing penalty for the sudden gratification of their cupidity.

This is cleverly accomplished, in the case of the seller of an Independent company, by securing a signed statement of past "errors," emphasizing the alleged unprofitable character of the business of which he and his "inside" associates are disposing, and so worded that it can be paraded before the country to frighten timid investors away from other Independent companies.

The conditions surrounding a recent statement of this character are notably outrageous. The Independent company controlled the bulk of the business in the locality covered; was managed by men of wealth and local influence; had been steadily issuing statements showing sound, and steadily improving financial condition, including heavy reserves.

The secretary of the company came to Chicago recently, and made all preliminary steps for disposing of a $200,000 bond issue. With these funds in hand, his company could have been soon in absolutely undisputed supremacy in its territory.

This is the sort of condition which inspires the Bell company to the greatest activity in attempts to buy out a successful rival—the sort of frenzied activity in which price is no object.

A rumor reached TELEPHONY that the Bell company had bought out a controlling interest, and dictated new by-laws which bore heavily upon the minority holders, who were not let into the deal. The secretary of the Independent company promptly wired a statement that the deal gave the Independent company full control of the territory, and the business.

The completion of the deal was celebrated by the publication of the most remarkable letter ever issued by a group of business men. It said the company had sold out for twenty cents on the dollar; had been continuously unprofitable; that depreciation had been neglected; that the unprofitable character of the business, existing for eight years, had been just discovered; and closed with the bold assertion that, notwithstanding its failure, it had been the most successful Independent company in the country.

Such a contradiction of past statements of success cannot be issued by any business man without a challenge from the business world. Nor can any telephone official honestly plead

MR. NALLY RE-AFFIRMS SINCERITY OF POSTAL TELEGRAPH PROPOSITION

In reply to a request from TELEPHONY to elaborate if possible, upon his proposition to connect generally with Independent telephone companies throughout the country, Edward J. Nally, vice-president and general manager of the Postal Telegraph-Cable Co., writes: "I do not know how I can be more explicit than I was in my statement, which you published, and which was published in 'The Postal Telegraph' monthly of July. We mean exactly what we say."

ignorance of depreciation in these days. Expert advice is too easy to obtain, and its sources are too well known to telephone financiers. It must be obvious to all that this statement is simply a Bell bogy, distributed to injure the entire Independent industry. Willingness to sign such a damaging admission is totally inconsistent, not only with the common code of business decency, but with a price of twenty cents on the dollar for control of the company. The statement is discredited by the very fact of its issuance. But the whole transaction is one which suggests the urgency of rigid investigation in the interests of minority stockholders, the public, and the Independent telephone industry.

The Higher Aspects of Traffic Engineering.

Mr. Valentine's paper on traffic engineering is destined to supply to all members of the American Institute of Electrical Engineers who give it the careful reading it deserves a higher conception of the skill required for the solution of the major problems of the telephone industry.

The nature and dimensions of any structure are determined by the load it is to carry. But where, in the whole broad realm of engineering practice, does one find a load at once so intangible and complex as telephone traffic?

Its source, spread over the nation, the units created instantaneously, by human whims and needs, fundamentally of indeterminate dimensions, and at indeterminate intervals, who would venture to say how far any laws of averages and methods of control may be applied? Yet, upon the deduction of such laws, and the application of such methods, depends the remunerative expenditure of hundreds of millions of dollars, and the efficiency of a service vitally necessary to millions of people.

Creation of adequate and appropriate facilities is not the end of the traffic engineer's work. The initial work of the problem is inextricably involved with problems of organization and administration of the highest order. And throughout its work the traffic department finds as one of its main factors that item most difficult of solution, the "human equation."

No telephone man, nor any man engaged in engineering work, can read the Institute paper closed in the pages of this issue without increased belief in the fascination of the telephone industry, and augmented respect for the skill of the men who are successfully solving its great problems.

What Is a Good Trust and What a Bad?

The only good trust is a dead one, according to James L. Wilkerson, assistant United States district attorney. Mr. Wilkerson has been active in the recent trust prosecutions by the government and will doubtless have an important part to play in subsequent proceedings. He recently addressed the national Delta Chi convention, at Chicago, at which time he took occasion to endorse President Taft's federal incorporation law as a remedy for all trust evils.

"The only good trust is the dead trust," said Mr. Wilkerson. "As understood by law, a trust is any combination which is formed for the restraint of trade. Thus it can be seen that the only good trust is the trust which has been killed and put out of business.

"Many think that a trust is any combination of capital. There can be no greater mistake. Many combinations of capital are as beneficial to the public as is the use of steam and electricity. But when capital organizes to monopolize trade and interstate commerce the organization becomes a menace and should be broken up by the government."

This is distinctly encouraging, particularly in view of the fact, as reported in our news columns this week, that the electrical trust—so-called—has surrendered, even as the bathtub trust did, and will probably agree to disintegrate and be good without the necessity for prosecution.

Now it is not entirely beyond the bounds of possibility that the Bell telephone trust may likewise decide that its policy of buying up competing companies is a dangerous, as well as an illegal, practice, and may abandon it in favor of some more safe and sane procedure of operation before the government institutes suit against it. Is it possible that the Utopian age is creeping upon us unawares?

Another Telephone Novelty.

Who ever heard of a snake in a cable box? If this is not a novelty we should have put the report on the back page. But we want to give due prominence to real novelties in the telephone world, and as a bit of hot weather news, the following item from the New York *American,* deserves a place:

"A large black snake which was locked up in a disturbing station box attached to a pole of the New York Telephone Company, on Washington street, Bloomfield, gave the hello girls at Montclair Central Station and the line repairers a busy hour yesterday.

"The box, which is situated about five feet from the ground, had been left open for a short time, when it is believed the snake entered, and in its efforts to get out it opened the switches in the box."

There it is, just as the newspaper man wrote it. No one thinks for a minute that the New York Telephone Co. puts switches in its cable boxes—but why refuse the rest of the story. Let us rather see if our readers can beat it. Sparrows, squirrels, bees, spiders' webs and "hot juice" are in the professional class, and barred. What else gets into a cable box?

Speaking of novelties, we thought we had something bearing all the bloom of summer freshness, in that recent little item about the stealing of telephone batteries for automobiles. But another reader writes in and says "That's one of my troubles, too. Tell me how to stop it." His letter sounded mad, too. He wants to know.

A Suggestion for the Sales Force.

"Try telephonic shopping," says a certain pharmacist in a display advertisement in a program. He goes on to say:

> Many of our readers are familiar with the promptness and dispatch with which we fill telephone orders. To those who are not, we wish to say that your telephone orders are earnestly solicited. Our quick delivery service is perfect and no matter whether the amount of your order be five cents or five dollars, in either case it will receive our careful and prompt attention.
>
> If you have not tried it, won't you try it? Our word for it, you will receive the same courteous treatment and quality and price of goods as though you visited out store in person.

This is a suggestion which might be worked up and developed by the sales force of any telephone company.

Boise, Idaho, Sale a Case for Department of Justice

Transfer of Independent Company to Rocky Mountain Bell Clearly a Violation of Sherman Act, Details of Which Should be Brought at Once Before Federal Officials—Management Claims Concern a "Failure," While Figures Prove Exact Contrary to Be the Case

A transaction which should be brought directly before the federal Department of Justice as a clear violation of the Sherman anti-trust law is the sale of the Independent Long Distance Telephone Co., of Boise, Idaho, to the Rocky Mountain Bell Telephone Co., which has just been consummated. By this sale competition in a large and important territory of Idaho and Nevada is wiped out, giving the Bell a monopoly. By it, too, is prevented the connection of that territory with the Independent long distance lines now reaching toward it from Pocatello, Idaho, which would have opened up the entire state of Montana and the northern parts of Idaho and Washington to the Independent company's subscribers. The Bell, therefore, is also left in undisputed possession of the long distance field, as well as of the local.

In November, 1910, J. C. Kelsey reviewed in TELEPHONY the progress and accomplishments of the Boise company. In the course of his remarks he touched upon the marvellous proportions of the apple industry in Idaho, in which a number of the promoters of the company had made and were making large amounts of money. In conclusion Mr. Kelsey said: "It seems a far cry from apples to telephones. But telephones bear a striking resemblance to whisky. Nothing spoils in combination with it—unless it might be the man."

Probably no aphorism was ever more succinctly stated, or had a larger measure of fact to sustain it. The Independent telephone business has spoiled many a man in that it has offered him opportunity to betray his associates by selling out to the competing system at a handsome though surreptitiously obtained, profit to himself, while they are left to "hold the bag."

By every known gauge of success the Boise Independent was and is a successful company. It had made wonderful strides in the matter of physical growth; the Bell officials themselves admit that the system had completely outdistanced their own. The statement issued by the Independent directors at the close of 1910 showed that over 16 per cent. had been earned in that year on the outstanding stock; it closed the year with undivided profits of $110,389—ample reserves for a plant valued at less than a half million dollars. It was going on to still further gains and substantial profits for its stockholders, when, without warning, save some preliminary talk of a merger to raise a little dust and obscure the issue, it is turned over, lock, stock and barrel, to its opponent—and the stockholders are assured that they will receive "about twenty cents on the dollar."

Not content with this apparent betrayal of the trust reposed in him as a successful man in the apple industry, C. J. Sinsel, secretary and general manager of the company, in a public statement, is guilty of the following banality:

> We desire to thank our stockholders and the public for the support which we have enjoyed during the twelve years of our existence, and congratulate you that, *while we have failed, we have made the best record made by any company in the United States embarked in the Independent telephone business under competition,* so far as we have been able to ascertain.

If this statement had been dictated by an official of the Rocky Mountain Bell for publicity use in the future, as it more than likely was, it could not have been better suited to their purposes. Nor could it have been farther from the truth.

The ordinary avenues of information have been open to Sinsel, as they have been to the general public for years. He has been a constant subscriber to TELEPHONY and is thoroughly familiar with the details of other Independent successes all over the country which have been printed week after week in this paper. He knows perfectly that scores and hundreds of Independent companies, both larger and smaller than his, have equalled or bettered the success his concern has attained. Yet he goes out of his way to take a slap at the industry as a whole, in a manner wholly gratuitous and absolutely without warrant. That this "formal statement of failure by the general manager of the defunct Independent company" will now take its place among the classics of the Bell Press Bureau, and will be spread broadcast over the country, there is no manner of doubt. C. J. Sinsel has done his work well.

It is now of interest to see in just what financial and physical condition this "unfortunate" company found itself, and which impelled its controlling stockholders to sell it to the Bell at $210,000, or "about twenty cents on the dollar" for its stockholders.

Sinsel, in his formal declaration, harps constantly on the heavy depreciation for which the company had made no provision, and which it could not meet. As stated before, the balance sheet showed undivided profits, at the close of 1910, aggregating $110,389, against a total plant valuation of $498,-993. To the unbiased observer this would appear to constitute an ample reserve, being something over 20 per cent. If this sum had been re-invested in plant, it had certainly become an investment against which new stock or bonds might have been legitimately issued, leaving the reserves on hand in cash, or in other securities which could be easily and quickly realized upon in case of need.

Sinsel declares that the company's rates were inadequate. Mr. Kelsey found the following rates in force when he was there:

Business	$48
Residence	24
Four-party residence	15
Rural	15

Do those rates seem too low to enable a company in a town of from 20,000 to 25,000 population to make a living income? As a matter of fact they were not and the statement that they were is too absurd to discuss.

The annual performance of the company, as Mr. Kelsey reported it, was a follows:

Cash income	$69,397
Operating cost	36,389
Net for reserves, interest and dividends	$33,008
Reserves	12,204
Net for interest and dividends	$20,804
Interest	8,809
Net for dividends	$11,995
Dividends, 6 per cent. on $197,600	11,856
Surplus	$139

That is, the company was not only making ample provision for depreciation or replacement reserves, but was earning 6 per cent. on its stock, with a margin, however slight, above requirements.

On a station basis, Mr. Kelsey found that the company's income was $25.75, while its operating expenses were but $13.42, leaving net earnings of $12.33 per station, an operat-

ing ratio of 52.1 per cent. This, while not a remarkable showing, certainly evidenced a sound and going condition. That the company has actually paid but two dividends indicates merely the practice of the management of putting surplus back into plant.

As to the situation at the close of last year, the company's balance sheet and revenue account, which follow, speak for themselves. The balance sheet of the Independent Long Distance Telephone Co., as of December 31, 1910, was as follows:

BALANCE SHEET.
As of December 31, 1910.

ASSETS.

Inventory of plant	$498,993.00
Stock in Meridian exchange	5,384.00
Stock in Nyssa exchange	1,000.00
Stock in Ontario exchange	1,000.00
Accounts receivable	3,920.42
Bills receivable	245.80
Telephone rentals due	12,196.71
Bank balance	607.95
	$523,347.88
Depreciation on plant, 1910	24,800.00
Net resources, January 1, 1911	$498,547.88

LIABILITIES.

Stock outstanding	$234,491.00
Bills payable	45,136.76
Assumed bonds, due 1912	25,000.00
Bonds, due 1929	76,000.00
Accounts payable	7,530.26
Undivided profits	110,389.86
	$498,547.88

The revenue account for the year ended December 31, 1910, was as follows:

INCOME.

Cash receipts	$112,789.68
Bank balance, January 1, 1910	3,603.32
	$116,393.00

EXPENSES.

Pay roll	$35,838.50
Interest	4,774.05
Taxes	1,889.45
Paid on notes	1,689.00
New material	22,203.71
New companies and stock	38,368.00
Construction, local material	1,454.19
Maintenance	9,568.15
Cash on hand	607.95
	$116,393.00

It will be observed that, of the expenses shown, $38,368 was laid out in the purchase of new companies and stock in others. Had this money been paid out in dividends, instead of being devoted to the extension of the system, it would have equalled 16.3 per cent. on the entire outstanding stock of the company. This alone appears to effectually dispose of Sinsel's statement that the company was a "failure" and unable to earn for its stockholders.

The physical growth of the plant is also of interest in this connection. In December, 1902, there were 87 stations connected; in August, 1910, there were 3,279. Today the company connects with upwards of 5,500 telephones which it controls, or partially so. Does that look like failure? It owns and operates nine exchanges and has exchanges or toll stations in forty-four towns in the vicinity of Boise. It has admittedly almost driven the Bell out of its territory. It is in a rich field. Ample funds would be forthcoming to finance every possible need of the company, could the investor be assured that some of the profits, instead of being applied to expansion, as in the past, would be applied to paying him a fair dividend.

The officers and directors of the Independent Long Distance Telephone Co., as shown on the statement of January 1, 1911, are as follows: President, A. J. Swain; first vice-president, C. E. Brainard; second vice-president, E. H. Beggs; secretary and general manager, C. J. Sinsel; treasurer, J. S. D. Manville; J. H. Weider, George Campbell, J. E. Tourtellotte and H. E. Neal.

The last annual report of the company showed a total of 117 stockholders, a number of them being women. These are the sufferers if the sale is allowed to go through, as well as the public, which now again confronts a monopoly. That the sale will not be allowed to go through TELEPHONY is reliably advised. It is understood that immediate steps will be taken by some of the interested parties, who are not disposed to content themselves with twenty cents on the dollar, to carry the matter into the courts with an injunction and secure a thorough ventilation of the entire affair. TELEPHONY sincerely trusts that this will be done, not only for the individual benefit which will inevitably result to the stockholders themselves, but for the permanent benefit of the whole telephone industry, which must otherwise suffer proportionately.

"Telephones bear a striking resemblance to whisky. Nothing spoils in combination with it—unless it might be the man!"

Electrical Trust May Disintegrate and Promise Good Behavior Without Need for Prosecution.

Conferences now being held between officials of the Department of Justice and attorneys for the so-called electrical trust may result in a complete anti-trust victory for the government without resort to court, says a Washington dispatch.

Government officials have been told that eleven of the electrical pools, which were said to restrict territory and fix prices of electrical equipment, have been discontinued and that all trade restrictions have been removed.

A question of patents is involved, however, and the conferences probably will determine if the electrical men shall submit to the permanent injunction the government asks for, or whether an agreed case shall be submitted to the courts for dicision.

The government's case now awaiting trial is against the National Electric Lamp Co. The General Electric Co. and the Westinghouse Co. are mentioned in the suit as owners of the stock of several of the subsidiary corporations. The method of dissolution and division of their stock is also one of the points at issue.

James J. Hill's Remedy for Trusts.

"There would be no trusts in the accepted meaning of the term," said James J. Hill recently, "if we had a federal law requiring every corporation to prove that its capital stock is fully paid up before it is allowed to do business in any of our states. That would prevent false inflation of values and the wide sale of stock in enterprises that are not solidly founded."

Bay Cities Home Will not Build in Nevada.

Officials of the Bay Cities Home (Independent) Telephone Co., of San Francisco, state that the company has no intention whatever of establishing its service at Reno, Nevada, as reported in the daily press recently. The city is well out of the company's present territory and it is announced that extensions will be made nearer home before going so far afield.

Federal Acquires Control of Rochester Independent

Possibility of Bell Absorption of Rochester Company Definitely Removed by Big Buffalo Independent—Also Purchases the 300 Miles of Long Distance Lines and Score of Exchanges of Independent Union and Buys Niagara County Plant—Now Operates 70,000 Stations

Control of a majority of the stock of the Rochester (Independent) Telephone Co. has been obtained by the Federal (Independent) Telephone & Telegraph Co. of Buffalo, thereby placing it entirely beyond the possibility of absorption by the Bell interests, which have made two attempts to attain that end. While this result has been forecast for about two months, official confirmation has not been given the fact until this time.

B. G. Hubbell, president of the Federal company, now authorizes the statement that this company has considerably more than a majority of the stock of the Rochester Independent. The management of the latter company is still in the hands of its former owners.

At the same time Mr. Hubbell announced that the Federal company had acquired the 300 miles of long distance lines and some twenty exchanges of the Independent Union Telephone Co., with headquarters at Albany, and the system of the Niagara County Telephone Co., of Niagara Falls. These two companies are part of the so-called Albany group of Independent lines, which extend throughout the eastern and northern sections of the state. The Independent Union deal alone represented an outlay of over $1,000,000.

Mr. Hubbell's statement relative to the acquisition of the Rochester and the two other companies is as follows:

> The Federal Telephone & Telegraph Co. now is the owner of more than a majority of the stock of the Rochester Telephone Co. I authorize the official publication of that statement as president of the Federal company. I expect in the near future to follow this announcment with our plans for the development of Rochester business. The consolidation of the Independent telephone interests in Rochester and Buffalo will, I believe, strengthen greatly the Independents in both cities and insure the continuance of competition with the Bell company. The consolidation places the Independents in a position to wage more aggressive competition than in the past, and will benefit all telephone subscribers in both cities. We also have acquired the long distance lines and exchanges of the Independent Union Telephone Co., and the Niagara County Telephone Co.
>
> They have been taken over to carry out our plan of giving the best possible service in what is known as the Buffalo wholesale and retail district, and to unite the Independent telephones in this district under one management, so as to secure the maximum of telephones available to our subscribers and patrons, and to be assured that they are properly managed.
>
> We now have approximately 70,000 telephones in our system, and connections with allied interests give us a total of more than 100,000, a number many more than our competitor has in the same territory.

Probably no radical change in the directorate of the Rochester company will be made at this time and any changes that come in the future are expected to be merely the substitution of other Rochester men for those who may resign from the present board. Many improvements in the lines of the Rochester company will undoubtedly follow the change of control and extensive additions to the system will be made.

The acquisition of the Rochester Independent and the Independent Union and Niagara companies makes the system of the Federal Telephone & Telegraph Co. the largest Independent system in the United States. The further fact that it covers a most prosperous and closely-populated territory, at the same time reaching to the very doors of the Bell's New York City stronghold, makes the position of the Federal company one alive with interest to every Independent operator.

The Federal company today is a conspicuous example of what energy and determination can accomplish in the Independent field. The splendid results attained by Mr. Hubbell's organization testify to the innate stability of the business and to the accomplishments possible under conservative financing and management.

Readers of TELEPHONY will recall that, last March, a committee representing the Rochester Telephone Co., and the Syracuse and Utica Independent companies, made a proposition to stockholders in those companies to sell out to the Bell interests at stated prices, providing a certain proportion of stock in each company could be obtained. For stock of the Rochester Telephone Co., $50 per share was offered. The Federal company then controlled about 1,500 shares out of a total of 4,894.

Soon after the Bell offer was made Federal interests began to acquire more stock of the Rochester company. The Bell also began to buy for cash, starting at $60 and running the price up to $100. Every known device for locating and getting control of stock was employed by the Bell interests, but the Federal company out-generalled them.

The Bell then decided to modify the terms of its offer to accept only two-thirds of the Rochester company's stock, and to seize it on a basis of ownership of 51 per cent. But the Federal interests circumvented this attempt as well by securing an injunction restraining the Bell officials and others believed to be concerned in the plan for putting it through.

No court action has ever been taken relative to this injunction since it was granted, nor has any effort been made to dissolve it.

The fact is recognized that there is no better territory for the profitable growth of Independent telephony than in that of the Rochester Telephone Co. and its long distance connections supplied by the Federal company. The close harmony in Western New York between the Federal Telephone & Telegraph Co., and the Postal Telegraph Co. lends additional assurance that both will profit by the new ownership of the Rochester territory.

The Rochester company now has over 11,000 subscribers, and is in excellent financial shape. Its service, since its organization in 1900, has been far superior to that of the Bell and there are today a large number of applicants waiting for the installation of telephones. Everything augurs splendidly for an even greater measure of success, now the handicap of possible absorption by the Bell has been removed.

Mr. Hubbell made no effort to prevent the Syracuse and Utica properties from going to the Bell, holding that they had always been more or less of a drag on the Rochester company. The Independent connections, however, are still maintained in Syracuse, Utica and down through the Mohawk Valley to Albany, despite the fact that the Bell owns the control of the two first named points. These connections are insured by traffic agreements, which the Bell cannot break.

Alabama City May Revoke Bell Franchise.

That the Bell exchange in New Decatur, Ala., may be closed down is possible on account of the recent decision of the Supreme Court of Alabama, which holds that the city has the right to revoke the franchise of the Southern Bell Telephone Co. The case was one of much interest, and had been in the courts for a number of years. The decision is regarded as one of the most momentous ever rendered by the Alabama Supreme Court.

Washington Public Service Commission to Decide Case Involving Right to Order Connection.

The Public Service Commission, of Washington, is for the first time considering the question of its right to enforce the physical connection of competing telephone companies. An Independent telephone company operating out of Silver Creek, west to to Winlock, east to Morton and northwest to Chehalis, has requested the Pacific Bell to grant it connection with its long distance lines, a request which has been refused. The complaint was filed with the commission by the officials of the Silver Creek company and various citizens of the town.

It is alleged that, at one time, the local company was able to secure connection with the Bell lines at Winlock and Chehalis, and that it was able to reach Tacoma by long distance from Morton, having connection with the small Independent companies running west from that point. However, it is declared, the Bell company ordered the Morton concern to cease doing business with the Silver Creek company, an order which has been complied with. The Bell connection at Chehalis and Winlock has also been discontinued, it is declared, thereby cutting off the Silver Creek subscribers completely from any point not reached by the local company's lines.

It is probable that the case will be carried to the supreme court, as the decision will establish a question having wide scope, and which will affect many other Independents.

Cumberland Council Approves Merger.

The Cumberland, Md., City Council has unanimously approved the proposed consolidation of the Western Maryland Telephone Co. with the Chesapeake & Potomac Bell. This was done in the face of a violent and well supported protest, which called attention to the totally inadequate service given by the Bell before the advent of the Independent company, and to the almost certain increase in rates which would follow a merger. The Western Maryland has over 2,800 telephones in Cumberland and Allegany counties while the Bell has less than 1,000, it is said.

The argument which apparently had the most weight with the council was the declaration that any question of service and rates would come under the jurisdiction of the Public Service Commission, and that, therefore, the interests of the people would be protected.

Popular Vote on Colorado Bell Proposition.

The Colorado (Bell) Telephone Co. asserts that, under the state laws, it does not require a franchise to do business in Denver. Recently it offered, in spite of that fact, to donate 2 per cent. of its gross annual receipts, the amount to be utilized in beautifying the streets. This was accepted by an ordinance drawn for that purpose. It was contended by many at the time that this formal acceptance by the city constituted a waiver of the city's right to demand a franchise, and it is now proposed to submit the question to a popular vote. The necessary petition for that purpose has been prepared and the issue will be voted on at the next spring election, next May.

H. E. Bradley Undergoes Operation.

H. E. Bradley, secretary of the Eastern State Traffic Association, and one of the most prominent Independent telephone men in Pennsylvania, was recently operated upon for appendicitis. His many friends throughout the entire Independent telephone field will join with TELEPHONY in wishing him an early and complete recovery.

Pennsylvania Company Declares Dividend.

Directors of the People's (Independent) Telephone Co., Butler, Pa., have declared a regular quarterly dividend of 1½ per cent.

New Man to Investigate Chicago Bell Rates for City.

E. W. Bemis, one-time professor of political economy, is the latest man to be engaged by the Chicago City Council to "investigate" the rates of the Chicago Telephone Co. Mr. Bemis has touched upon the gas question, having been engaged after a lightning calculation had enabled him to satisfy members of the council that he could bring in a report to justify 70 cent gas, which had been one of the rallying cries in the last election. His acumen as an investigator of the telephone business is shown by his initial remarks to the newspapers:

"I have spent some time studying the Hagenah report, and find it contains 131 pages. I hope that I shall not have to go over it all again."

To Carry Up Louisville-Cumberland Bell Suit.

The case of the city of Louisville versus the Cumberland (Bell) Telephone & Telegraph Co., regarding rate regulation, is to go before the Supreme Court of the United States in the near future. Clayton B. Blakey, city attorney, and his assistant, Huston Quin, have filed an assignment of errors containing seventy reasons, of various degrees of importance, as to why the decision of Judge Walter Evans of the United States Circuit Court, which granted a verdict in favor of the Cumberland company, should not be allowed to stand.

Quits Bell to Join Independent Clearing House.

The Douglas County Telephony Co. with head offices at Tuscola, which has always been a Bell connecting company, has joined the Independent movement, and J. H. Culver the president of the company, has joined the Illinois Toll Clearing Association. This company controls all of Douglas county, Illinois, and Mr. Culver, besides operating the telephone company, has large interests in electric light and gas companies and other business.

Cut Rate Competition an Issue in Ohio Courts.

It is reported from Hamilton, Ohio, that the Hamilton Gas & Electric Co., has charged the city in the courts of the state with an effort to ruin its business by selling gas at a price so low that the gas company is forced to sell its product at a loss to hold its customers. The city has kept its municipal plant in operation by taxation levies and bond issues, although it would be a failure owing to low rates if it were compelled to rely upon its own revenues for its support.

Nebraska Commission May Rule on Charity Rate.

Telephone companies of Nebraska are requested by the Railway Commission to send representatives to a hearing to be held July 24, at which will be discussed the propriety of adding another class to telephone classification so as to afford hospitals, churches, lodges and similar institutions a cheaper rate than can now be given without discrimination. Wisconsin adopted such a rule in 1908.

Penalty for Not Enforcing Good Service.

A civic league organized a few weeks ago to oust the city commission of Wichita, Kan., is having recall petitions printed. It will endeavor to recall Mayor J. H. Graham and two city commissioners, Robert B. Campbell and E. M. Leach. The petition says the commissioners have acted wrongly in a number of ways and have failed to force the Missouri & Kansas (Bell) Telephone Co. to give good service.

Bell Company Cutting Out Free Service in Michigan.

Charges have been inaugurated for service between numerous exchanges in Michigan, where the Bell company has hitherto given free service. Thus a discriminatory evil is abolished, while a legitimate source of revenue will now be developed.

Some Solutions

Vail's Solution for Handling Trusts—Steel Monopoly Prevents War—Chicago Traction—Etc.

By J. C. Kelsey

There are many solutions—mathematic, medical and economic.

Cardan's Solution—it shows us how to find the roots of a cubic equation.

Descartes' Solution—it shows us how to find the roots of a bi-quadratic equation.

Fowler's Solution—ask your druggist. Lugol's Solution, too.

And, last but not least, Vail's Solution. Purely an economic one.

Theodore Vail, president of the wire trust, has a solution of the trust problem. Here it is:

"A national commission composed of men with the same prestige as members of the supreme court"—and, look sharp now!—"which should act as the intercessors of the people in the decision of questions regarding action of great corporations."

A national commission! We have one already. It is the supreme court.

Are not these judges competent? Can't Mr. Vail trust the supreme court?

Apparently not!

The supreme court is a dangerous body to tamper with. It is about the only honest organization of men left.

A commission, newly appointed, could not attain the prestige of the supreme court inside of one hundred years.

As far as intercessors for the people is concerned, that is to laugh!

The people would stand a nice chance with the commission that would be appointed. Such a commission would come from walks of life that exist on trust methods.

The intercessors of the people would give as much consideration to the people as a fox would to an open hen-house.

It's a good scheme for a trust representative to refrain from solutions. They are hardly capable of suggesting relief for people. At least, Mr. Vail is not!

If he looked after the interests of the people as carefully as he does the licensee Bell minority stockholders, we would not last long.

If such a committee is to be appointed as "intercessors of the peepul," I would suggest the following named gentlemen.

Mr. Vail's suggestions will have great weight with the magazines he is supporting. I am sure they would agree upon this commission:

Charles W. Amory	Charles E. Hubbard
Thomas B. Bailey	L. C. Ledyard
George F. Baker	J. J. Mitchell
Francis Blake	W. L. Putnam
Harry H. Brigham	Thomas Sanders
Alexander Cochrane	S. L. Schoonmaker
T. Jefferson Coolidge, Jr.	Eugene Thayer
W. Murray Crane	Theodore N. Vail
Henry P. Davison	Frank Warner
Rudolph Ellis	John I. Waterbury
Norman Harris	Moses Williams
Henry Higginson	Robert Winsor
Henry Howe	

Such a commission would be composed of twenty-five men who would be pleased to act as intercessors of the people. These twenty-five gentlemen would make agreeable commissioners. They would be preferable to the supreme court any old day.

If the trusts got into trouble, this commission of twenty-five men would see that the people got their rights.

Why am I so sure of this?

Because these twenty-five are directors of the Bell trust. They would make an ideal commission.

Under such a commission of high-minded and high-souled gentlemen, we would have at last reached the millenium.

"Such control and regulation," says Mr. Vail, "can and should stop all abuses of capitalization, of extortion or of over-charges and unreasonable division of profits."

With such a commission as I have named, the public would be protected from such vital disorders as above named.

How few are afflicted with the above!

Most of us small fellows want the right to live in our small way. We do not care to grow up in daily fear of our job with a trust. We fail to see where the commission would give practical aid to the "peepul."

"When we all understand thoroughly, it will be found that control gives more of the benefits and public advantages than can be expected from state ownership."

Is that it?

Is Mr. Vail afraid of the Banquo ghost of state ownership? Is that what disturbs his dreams?

What will commissions do?

What have they done?

Are supreme judiciaries always exactly right?

Let us see what different judiciaries have done as the world has gone by.

"Judges are but men. In all ages they have shown human weaknesses." So said Charles Sumner in a speech to the United States Senate.

He said further: "It was a judicial tribunal that pushed the Savior barefoot over the streets of Jerusalem, bending beneath the cross.

"It was a judicial tribunal that sanctioned every despotic caprice of Henry VIII., from the unjust divorce of his queen to the beheading of Sir Thomas Moore.

"Judicial tribunals lighted the fires of persecution that glowed at Oxford and Smithfield, over the cinders of Latimer, Ridley and John Rogers.

"It upheld the fatal tyranny of ship money against the patriotic resistance of Hampden, which, in defiance of justice and humanity, sent Sidney and Russell to the block.

"It persistently enforced the laws of conformity that our Puritan forefathers just as persistently refused to obey.

"It gave us Jeffries on the bench, who crimsoned the pages of English history with massacre and murder—even with the blood of innocent women.

"Aye, sirs, it was a judicial tribunal, in our own country, surrounded by all forms of the law, which hung the witches of Salem.

"It affirmed also the constitutionality of the Stamp Act, while it admonished the jury and the people to obey; and, in our

day, lent its sanction to the unutterable atrocity of the Fugitive Slave Bill."

There you are! Judiciaries *can* err. So can commissions!

Don't you see that the whole trend of this talk is against competition?

These fellows realize that trusts are in danger and are pleading for justification.

In every line you can read some scheme to get control of everything and educate the people to it.

They suggest commissions! They speak platitudes with elocutionary grace.

And now comes the worst! Judge Gary claims that a steel trust will put a stop to war!

Did you ever know that competition in steel has caused the wars?

Did the War of the Roses start among steel manufacturers?

Did the Civil War start because Carnegie had competition?

Did the late Spanish war start its useless career because there was competition in steel products?

Oh! Japan and Russia got into it because there was no international steel trust.

Did Napoleon anticipate all this?

And did the noble 600 who charged into the "mouth of hell" do all of this because there was competition?

Oh, Competition! What crimes have been committed in thy name!

Little have I appreciated the enormity of your crimes!

You have made widows weep—orphans mourn—and men to go down to death 'mid belching cannons and rattling musketry.

Oh, Competition! You are that excresence that has caused all the woes of humanity! You are to blame for war, famine, plague and all!

No more can I even feebly defend competition. No more can anyone revile the steel trust:

First—Because its aims are peace and harmony;

Second—A better understanding of economical, ethical and sociological problems;

Third—And a saving in the cost of machinery.

Any one of these three aims, especially the third, is enough to excite our pity!

Theodore Vail will have to speed up, if he expects to keep ahead of Judge Gary.

It is indeed an interesting spectacle.

Right in the midst of all this peace and philanthropy talk, we have another example of the kindness and mercy of the monopolist. Chicago railways are to be merged. The plan is believed to be perfect.

Why perfect? Let me tell you. Because it will protect the holding company promoters from lawsuits with the minority stockholders.

Here is a new phase of financial situation. Promoters simply will not consider their plans perfect unless they can skin the minority stockholders.

Simply Jesse James over again. They never would attack a bank unless they knew it was safe.

The Chicago plan is unique. It is even regarded as a master-piece of ingenuity!

Not only does the holding group have immunity from suits of poor disappointed minority stockholders, but they took control of 1,029 miles of street railway with little or no cash.

It is just like a burglar. He goes through your house with little or no outlay of either cash or energy. And if you hear him, you have no legal right to interfere.

Do you wonder that construction business is bad? It is because few securities sell. Who wants to buy them? It is really one of the great difficulties—where a small investor can place his money—that is, with any hope of getting it back.

Construction business is bad. Even the great telephone trust will build less than it claims.

It was estimated that $60,000,000 was needed to cover additions, but they have reduced it by $15,000,000.

You can see that the treatment of the minority stockholder by the majority holders is having its effect.

The golden egg will soon be missing. Because the foolish financial interests, in their insane and shameless greed, are slowly but surely killing the goose that lays it.

It is inconceivable that such a policy should be followed. Business really needs all the honesty and integrity it can get.

No great financial interest is stronger than its weakest, responsible employe. Nor is any financial house stronger than the willingness of the small investor to buy.

It is about time that big business squared away and put itself on the level toward the unfortunate minority holder, who is usually powerless to protest.

Instead of a commission to bring us into the millenium of corporate joy, let us have some means of safeguarding the small investor. Not the fool who buys wild-cat stocks, but the foolish person who invests in modern corporations, which know naught but the so-called higher law.

Solutions will not come from them. Solutions lie only with the oppressed.

Such solutions are slow acting, but blaze with terrible energy in the finality.

MORAL: Vail's Solution is not disinterested.

To Merge United States and Cuyahoga Companies.

At the recent annual meeting of the stockholders of the United States Telephone Co., the Ohio long distance corporation now controlled by J. P. Morgan, Charles A. Otis, president of the company, stated that it was proposed to merge that concern with the Cuyahoga Telephone Co., of Cleveland. He said that arrangements were being made, but that progress was slow and that nothing definite had as yet been done. M. C. Harvey, of Otis & Hough, was elected a director of the United States company.

Camden County Orders Out Bell Telephones.

The determination of the Bell Telephone Co. of Pennsylvania to enforce toll charges between Camden, N. J., and Philadelphia, just across the river, instead of allowing unlimited service, as heretofore, has resulted in the widest protest among its subscribers. The matter will probably come before the Public Utilities Commission for adjudication. Meanwhile the Camden County Board of Freeholders has ordered the service discontinued in all the county offices, except the almshouse and asylum.

Illinois Watches Operations of Wisconsin Commission.

The committee appointed by the Illinois Legislature at its last session to consider the question of the enactment of a public utility law in that state, met this week, at the call of the chairman, Senator John Dailey, at Madison, Wis., to observe the proceedings of the Wisconsin Railroad Commission.

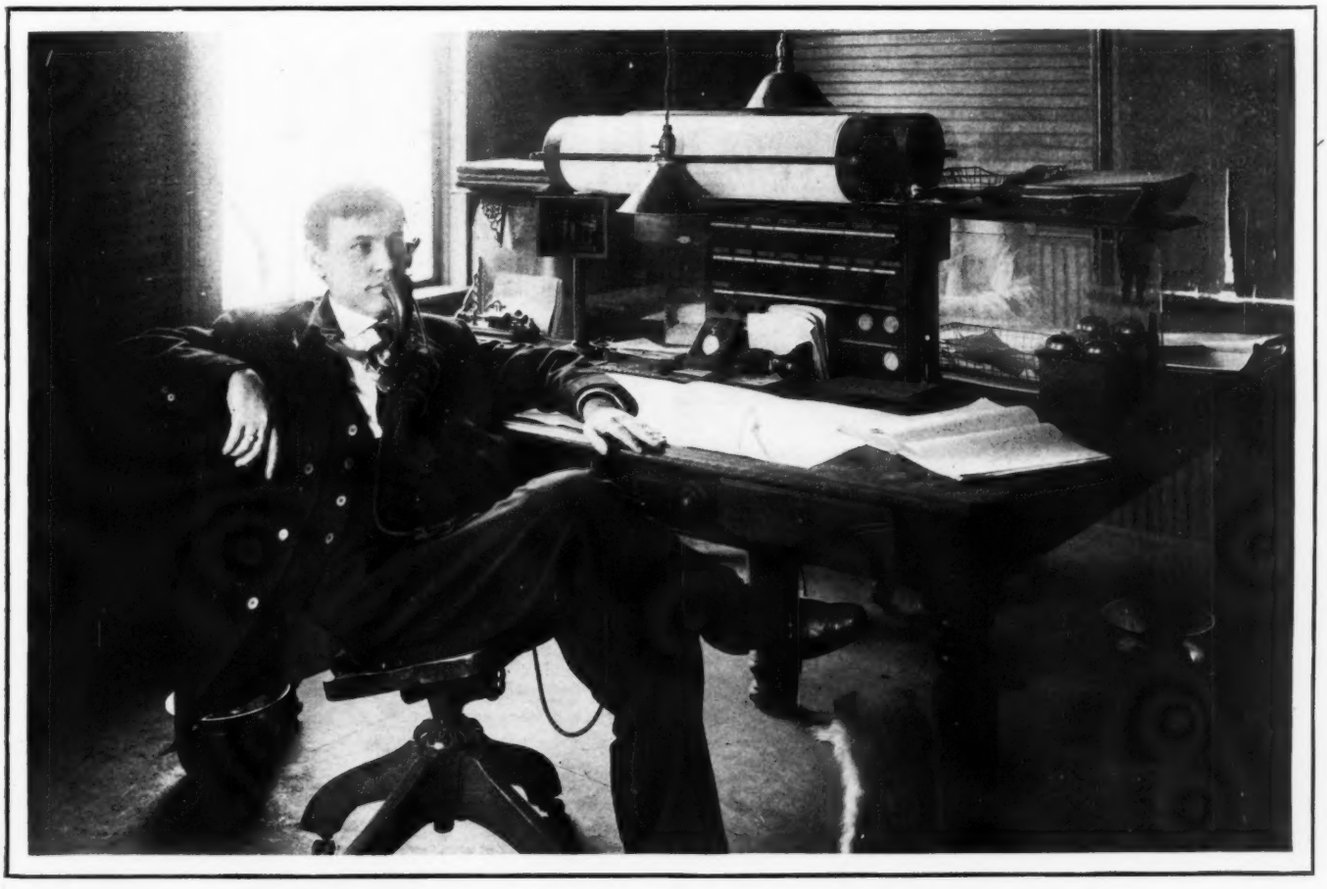
Selective Telephone Circuits on the Frisco Lines

Where, Through the Use of Phantom Circuits Copper Line Wire is Most Economically Employed and Where Telephone Message Circuits Have Reached a High State of Efficiency—The First Authoritative Description of This Remarkable Railway Telephone System

By W. L. Cook

The railways of the country are only beginning to appreciate the possibilities of the telephone as a means of communication. True enough, there is no longer any doubt in the minds of representative railroad men with regard to the practical advantages and the superiority of the selectively manipulated telephone circuit over the fast disappearing telegraph circuit for purposes of train dispatching. Then, too, the substantial value of telephone blocking where automatic blocking is not employed is generally recognized. But as yet very few railroad men appear to have fully grasped all that the telephone is capable of, as a means of handling a very great part of the enormous message business which is so essential to the prompt and efficient conduct of railroad business. Delay in the construction of such message circuits has been, beyond doubt, the result of a narrow consideration of the cost of metallic copper circuits for the handling of message business, which would parallel similar circuits devoted to the handling of trains. Even the best of railroad men have in some cases failed to appreciate the fact that only by means of such parallel circuits can copper telephone wires be employed to the best advantage; and in others progress has been hampered because a knowledge of ineffectual and bungling attempts by incompetent persons to create satisfactory commercial phantom circuits by utilizing such parallel, selector-equipped train and message circuits, has bred the conviction that such phantom circuits are not of practical value, but merely theoretical moonshine.

On some of the Eastern and Middle Western railroads, telephone message circuits are now employed to some extent, and a few of the railroads in these sections of the country are operating short phantom circuits to advantage. It remained for the Frisco System to demonstrate the possibilities of the telephone for handling message business. Not only is the telephone message circuit developed on the Frisco Lines to a degree unknown to other railway systems, but in the matter of economical employment of its copper line wires, the Frisco System stands in a class by itself, and its long haul phantom message circuits are beautiful examples of the high class service obtainable on circuits of the kind when intelligently arranged; and this it must be remembered entirely without outlay except for the cost of a few inexpensive coils and condensers and the expense of a few special transpositions.



Dispatcher's Office, with Typical Equipment, in the Frisco Station at Ft. Scott, Kansas.

The Men Who Plan the Wires.

Credit for all this is due to H. D. Teed, the energetic superintendent of telegraph of the Frisco System, and to his efficient and carefully chosen assistants and aids, of whom J. H. Brennan, assistant superintendent of telegraph, is

the ranking man. There is perhaps no railway telegraph man better known west of the Mississippi River, from the Canadian border to the Gulf, than is Mr. Teed. His career as a railway telegrapher was begun in the East, where he was employed in the service of the New York Central Railroad, and also in that of the old Housatonic Railroad, now the Berkshire division of the New York, New Haven & Hartford. Leaving the scenes of his early experiences, Mr. Teed went to the Northwest, and capably filled many positions on the great Northwestern trunk lines; among others that of dispatcher for the Great Northern Railway at Crookston, Minn., and of manager of the Helena, Mont., office of the Northern Pacific Railway. From Helena Mr. Teed went to Galveston, Texas, where he entered the service of the Santa Fe System as telegraph manager of the Gulf Lines. Mr. Teed left the service of the Santa Fe to become superintendent of telegraph of the Frisco System.

H. D. Teed, Supt. Telegraph.

Mr. Brennan is also an old Santa Fe man, having served that road as wire chief and manager at Las Vegas, N. M., and wire chief and manager at La Junta, Colo. Mr. Teed's rare judgment of men was displayed when he secured Mr. Brennam's services, and again when he secured C. W. Harding, who left the service of the Northern Pacific to become Mr. Teed's chief clerk, and who participated in the work of planning the telephone circuit arrangements for the Frisco Lines. Mr. Harding has recently returned to the service of the Northern Pacific Railway and is now employed as chief clerk in the office of O. C. Greene, superintendent of telegraph of the Northern Pacific.

The Heart of the System.

Springfield, Mo., in the heart of the Ozarks, is the heart of the Frisco System.

The geographical location of Springfield and the Frisco Lines radiating from Springfield has an important bearing on the plan of operation of the system. Springfield is 238 miles southeast of St. Louis, on the main line of the "Frisco to Texas," and the important Kansas City-Birmingham trunk line of the Frisco intersects the St. Louis-Texas line at Springfield. Here are located many important operating officials, including the general manager, assistant general manager, superintendent of telegraph, signal engineer, general superintendent of motive power, chief engineer and staff, car accountant and general superintendents having jurisdiction over two grand divisions of the system. A new modern office building has been built for their accommodation. Extensive warehouses and the new "Million Dollar Shops," completed two years ago, are also located at Springfield. From this will be seen the importance of providing adequate telephone facilities at this point.

P. B. X. Systems at Big Missouri Cities.

For the better understanding of the entire problem, it is well to explain that at St. Louis, where the executive offices are located, and at Kansas City, an important terminal, the Railroad company maintains large private branch exchanges by means of which the company's private telephone wires are connected with the commercial telephone systems of the two cities. A multiple private branch exchange of the most up-to-date common battery type has been installed at Springfield, with capacity for several hundred lines, and more than one hundred lines are in service. A second private branch switchboard, with trunks from the first, serves the shops.

Two long haul telephone trunk lines terminate in the private branch exchange, giving long haul service to St. Louis and Kansas City, where the circuits also connect with the railway company's private branch exchanges. Two other long haul

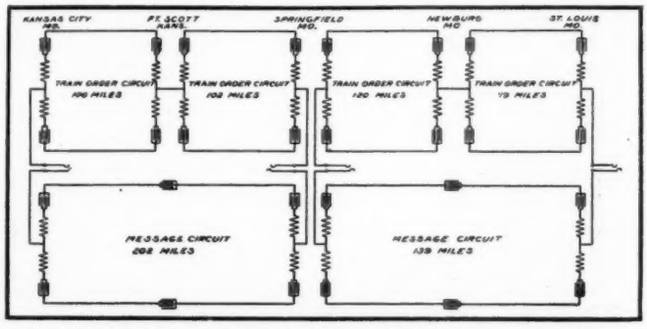


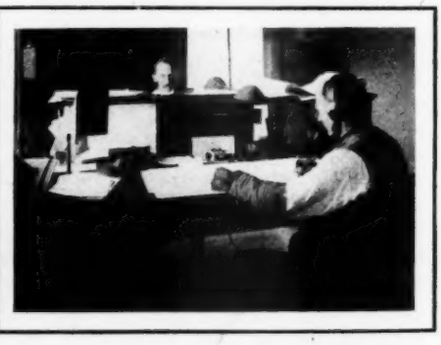
Fig. A. Phantomed Telephone Lines Between Kansas City and St. Louis.

circuits connect the Springfield private branch exchange with Thayer, Mo., 138 miles southeast of Springfield, and with Monett, Mo., 44 miles southwest.

These four long haul trunks are phantom circuits, the telegraph department having utilized parallel train dispatching and "local" message circuits for through phantom service from Springfield to St. Louis, Kansas City, Thayer and Monett. The private branch exchange systems provide facilities for connecting these phantom trunks with the local message circuits, as well as with local lines terminating in the several private branch exchanges, so that an official out on the line at any way station in this district can be connected with any other way station, or with any of the offices at St. Louis, Springfield or Kansas City. The private branch exchange at Springfield pro-

Two Message Circuit Keyboards, Springfield.

Electric Signals on the Frisco.

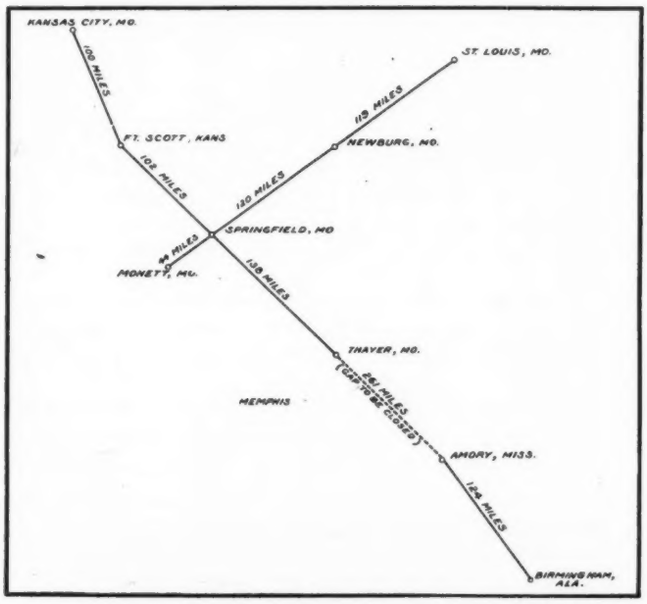


The Dispatcher at Springfield.

vides means for through connecting the several phantom trunks, thus establishing through long haul circuits as may be desired between St. Louis, Thayer, Monett and Kansas City.

In Fig. A is shown diagrammatically the arrangement of line wires and station apparatus between Kansas City and St. Louis, by means of which phantom circuits are derived. It will be noted that one side of the phantom is made up of two message circuits, and the other side of four train order circuits. At the terminals of each circuit, coils and condensers are bridged across the line as shown. The phantom taps are taken from the centers of the coils to jacks in the private branch exchange switchboards at St. Louis, Kansas City and Springfield, and it is by means of the jacks and of special cord circuits that the phantom circuits are connected together and with station and local message lines.

The coils used are parallel wound and iron clad. Each of the two windings which are utilized has the same resistance and number of turns, making the apparent resistance of the two equal. As a result of this construction, the voice currents on the phantom circuit are divided equally between the two windings of the coil and between the two line wires to which the coils are connected. By the parallel winding, a differential effect is obtained so that the coil presents no impedance to the passage of voice currents on the phantom and at the same time offers very high impedance to voice currents on the physical circuits.



The Frisco Telephone System Centers at Springfield, Mo.

By reference to the diagram, it will be seen that condensers are connected in series with the coils across the physical circuits. As the two windings of the coils must be equally balanced in order that voice currents on the phantom system may divide equally between the two sides of the line, so must the capacity of the condensers be equal, as otherwise the phantom voice currents, being unequal on the two sides of the physical circuits, would tend to equalize through the telephones, causing cross-talk. As the phantom coils do not perform the function of repeating coils, small parallel wound coils are more satisfactory than those of the heavy toroidal type built to give "ring-through" efficiency. Uniform condenser capacity is of the utmost importance, and while it is a simple matter to select condensers of equal capacity, if the standard pressed telephone condenser is used, there is no assurance that the capacity will remain constant, because of the tendency of the pressed condensers to swell. It is, therefore, advisable to employ condensers of the cylindrical type.

The condensers shown at Ft. Scott and Newburg, in series with the two sides of the message circuits, are for the purpose of maintaining the continuity of the telephone circuit and interrupting the signaling impulses which are repeated at these points.

The line wires are transposed as shown in Fig. B, conforming closely to standard telephone practice. The phantom transpositions are made on four-point brackets (Hubbard & Co.) at one mile intervals. On the same lead several duplex and quadruplex telegraph circuits are carried. The plan of transpositions followed seems entirely adequate to prevent telegraph induction on both the physical and phantom telephone circuits.

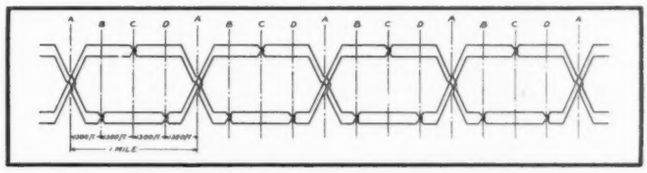


Fig. B. Layout of the Transpositions; Four to the Mile.

It has been explained that the phantom trunks are made up of parallel "local" message and train dispatching telephone circuits. Four 210 lb. copper metallic circuits provide facilities for interchanging local messages with all way stations in this district, the most important, that between Springfield and St. Louis, being 239 miles in length and serving 50 way offices. A 202-mile circuit between Springfield and Kansas City serves 40 way offices, and those from Springfield to Thayer and Monett serve 26 and 20 way offices, respectively. The circuit to Thayer is 138 miles long and that to Monett 44 miles.

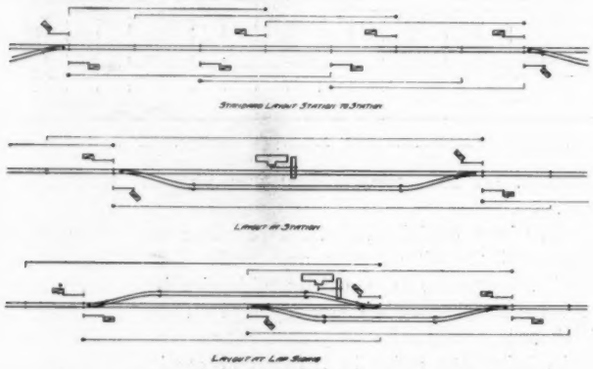
At Springfield there are monitoring operators who control all four "local" message circuits. Two sixty capacity Gill keyboards are provided for calling way stations. Each keyboard is arranged to signal on any of the four circuits, allowing one or two operators to monitor the circuits. Each way station is provided with a hand generator for calling the monitor in on the circuit during slack hours, the operation of the hand generator at the way station causing a lamp signal to light before the operator, the signal being extinguished when the operator answers. During busy hours two monitoring operators sit in on the circuits, a long and a short line being assigned to each operator. Each operator is at such times provided with two head receivers, one associated with each line under her supervision. A way station desiring to call another during busy hours is thus enabled to communicate his desire to the monitor, and to get his party without even the slight delay of signaling the monitor.

Way Station, with Telephone Equipment, Aurora.

Each of the one hundred and thirty odd way offices in this district is provided with a Gill main line bell selector asso-

ciated with one of the four local message circuits. The signaling combination numbers of the selectors on the longest circuits are duplicated as far as possible on each of the other message circuits, so that a Gill calling key in either of the 60 capacity keyboards may be used for calling a way office on each of the four circuits. Designation strips with space for names of four stations are mounted above the keys on the keyboards, and simple facilities are provided for switching the keyboards from one circuit to another.

The monitoring operators' equipment is located in the private branch exchange room at Springfield, and the monitoring



Layout of Block Signal System on Frisco Lines.

operators come under the supervision of Miss Whitaker, the chief exchange operator, whose thorough experience as long distance chief operator for one of the commercial telephone companies enables her to operate the plant at highest efficiency. Prompt service is the keynote of successful operation of a plant and here we find prompt service highly developed. A close check is also kept by the operators on the duration of telephone conversations over the long haul phantom trunks and local message circuits, resulting in the elimination of all conversations not of a strictly business character and of business talks of unnecessary length.

The method of giving information to the public employed at Springfield may be of interest to some. At about the time the Springfield depot ticket office reported an increase in the force necessary, owing to almost continuous telephone calls for information, Miss Whitaker reported that most of the calls for the ticket office were for information which her operators could give with as little trouble as would be required to supervise connections with the ticket office. Arrangements were made to keep the operators informed on certain subjects, so that many of the public's questions are now answered more quickly than before, and the congestion at the ticket office has been relieved.

As has been mentioned, the telephone train dispatching circuits are utilized as one side of the long haul phantom trunks. There are six 210-lb. copper train dispatching circuits in continuous service for operating trains in the district described above. The Frisco, like all other railroads in the Southwest, is for the most part single track, and one finds here some of the busiest train dispatching circuits in the country. The rapid development of the Southwest, with the more rapid growth of the Frisco, the addition of several through passenger and freight trains for Southern Texas over the Houston & Texas Central from Dallas to Houston, Texas, and the greatly increasing volume of traffic originating on the Frisco's Brownsville and New Orleans lines, have made train dispatching on the trunk lines a difficult problem, which the telephone has solved. Automatic block signals are in operation on this entire district as a further aid to safe train movement.

The Lebanon Division, extending from St. Louis to Monett, Mo., is divided into three telephone train dispatching districts. One set of dispatchers at Newburg, Mo., works from Newburg to St. Louis, 119 miles, and two sets of dispatchers at Springfield operate trains over the mountain districts, Springfield to Newburg and Springfield to Monett, 120 miles and 44 miles respectively. The Springfield dispatchers are shown at work in the photographic view of the Springfield office. They work here in a quiet room where no telegraph instruments are used, and are not disturbed, as it is necessary to pass through the chief's room to gain access to their quarters.

Fort Scott, Kansas, where two sets of telephone dispatchers are located, is the headquarters of the Eastern Division. The telephone train dispatching circuits extend to Kansas City, 100 miles north, and to Springfield, 102 miles southeast. Another circuit extends from Thayer, Mo., to Springfield, 138 miles, with a dispatcher at Thayer.

Parallel train dispatching and local message circuits are also in service between Birmingham, Ala., and Amory, Miss. Like all the other circuits on the Frisco, these are composed of four 210-lb. copper wires which have been utilized for through phantom message service between Birmingham and Amory. It is expected that, when the gap is closed between Thayer, Mo., and Amory, Miss., the phantom can be utilized for through service between Birmingham and Springfield, St. Louis, Kansas City and the other cities reached from Springfield.

Each way office on these circuits is equipped with two Gill main line bell selectors, for calling agents and operators to the telephone circuits. Different toned gongs are provided which enable them to distinguish between train and message circuit calls. The selectors have the same signaling combination, so that in case of line trouble the dispatcher is given the message circuit and thus enabled to continue his work without interruption.

The Springfield passenger station, where four telegraph train dispatching instruments and four local message telegraph circuits have been replaced by telephone facilities, deserves special mention. A Gill main line bell selector associated with each of the four train order circuits is provided. Each of these selectors, like all the others on the system, includes a call bell operated from the main line battery. A small cabinet

Dispatcher's Telephone Set Terminates in a Double Plug.

is mounted on the table in front of the operator, and contains a drop and jack associated with each of the selectors. When one of the dispatchers calls, the bell in the selector rings and the drop associated with the selector is operated. The operator, whose telephone terminates on a plug, inserts the plug in the corresponding jack, answering the dispatcher. The act of inserting the plug restores the drop to its normal position. The bell and drop are both operated by the main line battery. A second telephone, for message service, is on a direct line from the monitoring operator, and is connected with the various message circuits as required. At Nichols, Mo., where

four selectors are installed, a similar drop and jack cabinet is used. The elimination of confusing calls in these two offices has had a decidedly beneficial effect upon the service.

The train and message circuits are both provided with Gill double gong main line bell selectors, manufactured by the United States Electric Co., as shown in the photograph. This was the first extensive installation of selectors employing call bells operated from main line current, and their successful operation here had considerable influence in bringing the main line bell into general use. It is a matter of record in the office of the superintendent of telegraph that out of 280 Gill selectors in service, only 4 cases of selector trouble have developed since the first circuits were put in operation, April 15, 1910.

The line circuits at the way stations terminate on "Sandwich" cordless jack boxes for connecting the Flexiphone telephone arms with either train or message circuit at the will of the operator. Similar jack boxes are used at the dispatcher's office, which enable the dispatcher to connect his telephone and signaling equipment with either the train or message circuit. As shown in a photographic view, the dispatcher is provided with a breast transmitter and head receiver.

The monitoring operator's equipment is also shown in a photograph. The large keyboards and operator's telephone equipments are readily connected with any of the four message circuits. In the photograph is shown signaling equipment for four circuits, mounted on a rack where each piece of apparatus is readily accessible.

A storage battery plant consisting of 125 cells of type KA couples, manufactured by the Universal Electric Storage Battery Co. provides current for operating all four message circuits and the train dispatching circuits from Springfield to Newburg and Monett. The charging machine and charging panel associated with the batteries are located in the P. B. X. room.

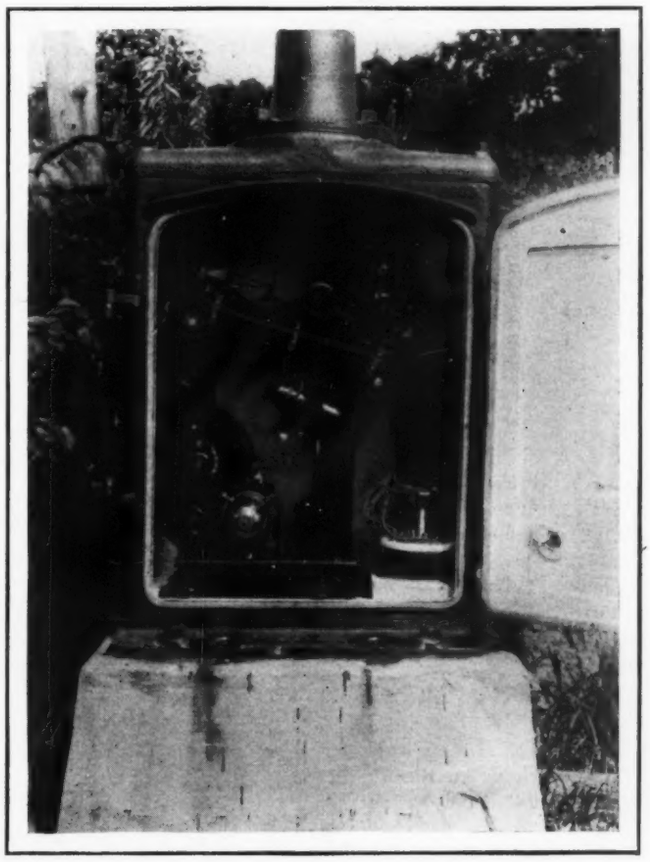
J. J. Stowe, formerly wire chief of a commercial telephone plant, is special telephone maintainer of the Frisco plant. Mr. Stowe has made numerous alterations for the betterment of the service, and has recently completed a telephone test panel for testing all circuits entering Springfield. In his test panel Mr. Stowe has followed closely along the lines of standard telephone practice.

All telephone wires and equipment are maintained by the various division linemen under the supervision of Fred Bastian, general line foreman, who was for many years associated with the telegraph department of the Sante Fe, and who has played an important part in telephone development. Assistant general foremen, Kirkland and Musgrave, to whom the line maintainers report, are both experienced telephone men. Any alterations or troubles of any unusual character are taken care of by Mr. Stowe and his assistant, Mr. Woods.

Aurora Station, Showing Entering Wires.

Mr. Teed has built up a splendid wire organization on the Frisco, one that has no superior anywhere in the country. Wire chiefs and assistant chiefs at division headquarters have taken pride in keeping telephone wires clear of trouble. Among the division men who are active in the maintenance work of the system are Messrs. Linster, Hadley and Brown, of Fort Scott, and Mr. Sherwood of Springfield.

The keen interest which the division men have displayed in the telephone system has doubtless contributed substantially to its very complete success.



Mechanism of Automatic Block Signal.

It will pay any superintendent of a railway telegraph system, or any railway official who may be in the vicinity of Springfield, Mo., to call on Mr. Teed and observe what is being done on the Frisco message circuits, both physical and phantom. It will be found very impressive, very convincing, and possibly very surprising. If you cannot conveniently get to Springfield, ask anyone who has had an opportunity to observe the workings of the Frisco system of selective telephone circuits and listen to what he tells you!

Telephone Train Dispatching Rules.

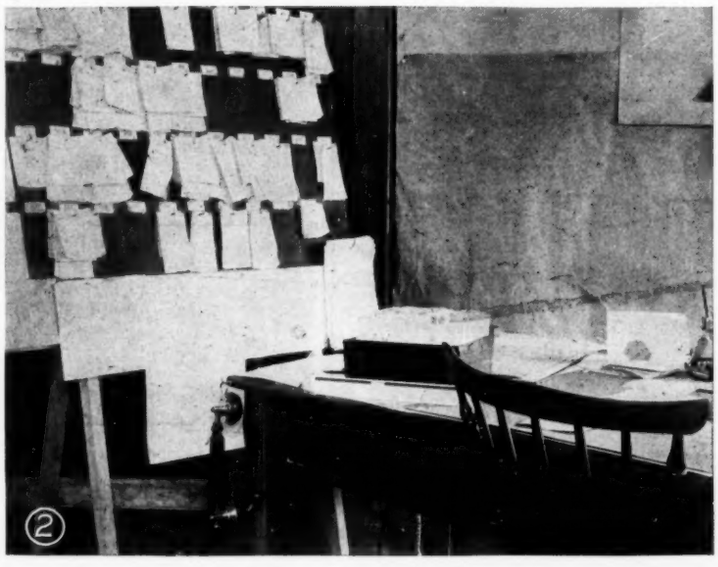
The United States Electric Co. has issued, in its bulletin No. 502, some suggested rules for telephone train dispatching. These rules are a compilation of the requirements generally adopted by the majority of American railways which have installed telephone train dispatching. As reflecting the consensus of judgment of users, these rules are of interest to roads contemplating the change to telephone dispatching. Some general instructions governing the use of the telephone in railway service follow, and it is believed that, as simple as some of these appear, they have an important bearing on the efficient operation of a railway telephone installation.

One of the difficulties of life is to successfully put together the little things and make big ones of them.

My Chaser—The Telephone*

My telephone was designed for my convenience. With it I can reach my factory departments with the greatest ease. The way it is constructed has advantages for this work which are made clear in the illustrations.

Suppose I have a call, long or short, but especially long. I can hold my telephone naturally (1) without tiring. When it is not in use, it hangs on an apparatus similar to the one shown in the pitcure. The instrument is always out of the way, yet always ready for use.



I have a call come for which several sheets of information are necessary. I scatter them conveniently about the desk (3) with my writing pad ready. With my Swedish telephone there is no chance of getting the cord snarled with the ink-bottle, or of placing the receiver stand on the report which in the end is probably the one for which I am looking.

Perhaps my information is in the bottom drawer of my desk. I don't have to stop conversation and start hunting but with my telephone in one hand I can rustle with the other hand through the lower drawer (5) and continue my talk.

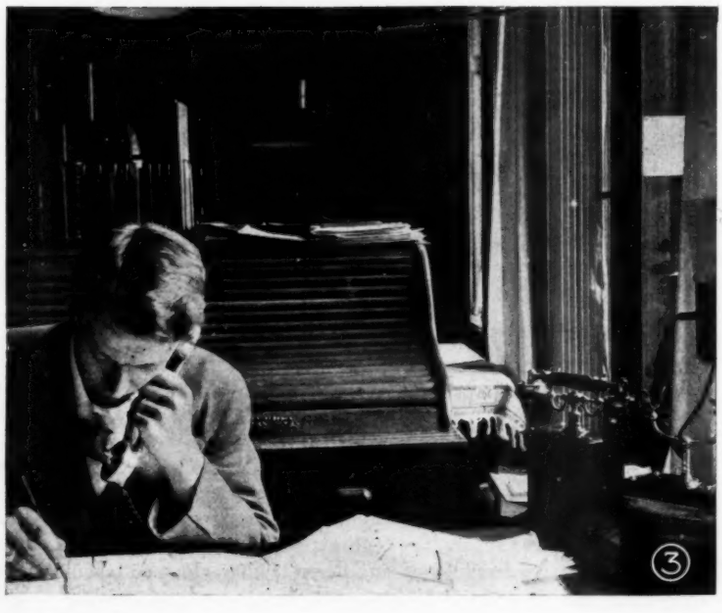
I want to talk with my shop foreman. I have two telephones, one connects me with the outside world, one with my factory. With my Swedish telephone, since transmitter and receiver are in one piece, I can hold conversation with both foreman and outside customer (6) at the same time, holding the telephones as illustrated in the photograph. In the section of my instrument which I hold in my hand is a cut-out bar so that merely by pressing one of these bars I can talk to either foreman or customer without changing my position.

My foreman has a similar telephone out in the shop. He can consult his order book, make notes or take down instructions without hindrance—always ready to reply or receive whether he is looking at his order-book or writing.

The man who handles the clerical work also has a telephone. It hangs ready for use, when he is at work on other duties, in the position shown in the photograph (4). This telephone is located across the room from the foreman's desk. When the foreman is out, the clerk answers the calls. It was put in at slight additional cost—it is connected to the central telephone—it is right at the clerk's elbow, ready for use. He does not have to drop his pencil to answer the call—he can reply at once about anything at his desk or consult the card files behind him—he does not have to pull cards from the file as he always has one hand free. Truly, a convenient time-saver.

On the floor above the foreman is another clerk who does not handle foreman's calls. But it is often necessary to get data from this clerk or get messages to him. So a branch line from the foreman's apparatus, with a bell with its predetermined signal, does the trick. The telephone hangs near the time-slip rack (2). The clerk can stand up and still have one hand free to consult the time-slips on the rack.

All in all my telephone saves many steps and much unnecessary work. A one-armed man could



*By Ralph D. Forsstedt, production manager, Nordiska Metall Aktiebolaget, Sweden. Reproduced through courtesy of *Factory*, System Company, publishers.

Practical Use in Swedish Factory

use it in bed, it's that convenient.

The Right Way to Handle Tree Trimming—From a Practical Point of View.

A man to be successful in tree trimming must first have a reasonable amount of common sense and know how to use it; he must also have respect for the truth, and when he makes a promise keep that promise to the letter. He must not consider failure until he is satisfied that no man can succeed; he must be sure that if any one can get permission to trim a certain tree he is the man to get it.

If he gets turned down cold, it is well not to push the case too hard, but let the property owner think it over. After he has seen the work you are doing, go back and call his attention to the way you have trimmed Mr. Smith's and Mr. Jones' trees. Make it strong that his trees are interfering with the service; keep after him until you get permission: After getting permission to trim, say, four feet, and you have promised to round the tree up and make it look equally as well or better than it did before, it is up to you to do just that very thing. If you do, you need not worry about any trouble from that party again; but if you make all kinds of promises and then go in and cut and slash the tree, you have queered yourself and the company. The next man who comes along trimming trees will get the benefit of your lying and rotten work.

I have been up against cases where some man would show me how his trees were slaughtered, and refuse to let me touch a twig; he would tell me the company just picked out men capable of doing anything to get the trimming. In those cases, I would trim on both sides of him and then come back and get him out to see what I had done. This is the only way I can get trimming in such cases.

But that come back business costs money, and the feeling that exists should not have been created, and it is a thing that costs the company many good, hard dollars to square and make it so that a man can go out and trim trees without facing a buil dog and shot gun.—Wm. Ferris, lineman, in *Michigan State Gazette*.

Two Number System to New York.

The Bell Telephone Company of Pennsylvania now is advertising 60-second service between Philadelphia and New York as a result of the recent introduction of the two-number system of operating. Subscribers are instructed to simply give their operator the name of the city, the name of the exchange, and the number desired, and remain listening at the telephone until the connection is completed.

The rate for a two-number call is reduced to sixty-five cents, but particular person service is also given at the old rate, seventy-five cents.

Record of Some Heroic Work Done by a Pennsylvania Telephone Lineman.

The men who carry on the routine work of a public service corporation often have extraordinary demands made upon their courage and endurance, and if all such instances could be collected the stories of thrilling experiences would make a book of absorbing interest. Appreciation of this fact is shown in a paper presented before the Philadelphia Telephone Society by J. H. Crosman, Jr., division manager of the Harrisburg division of the Bell Telephone Co. He says:

"Away back on the first day of June, 1890, at the height of the terrible Johnstown flood, when railroad tracks, telephone and telegraph lines in Cambria, Blair and Huntingdon counties, of Pennsylvania, were literally wiped out of existence, old John Davis, then a station lineman at Altoona, now a foreman in the plant department, swam his team straight across the raging Juniata River, repaired the Altoona-Hollidaysburg trunk lines and established service between these two towns. The next day he again swam the same river at Franklin Forge with a single horse, carrying over with him a wire with which he then proceeded to pull over his buggy, and once more established telephone service, this time between Hollidaysburg, Altoona and Williamsburg, at that time important towns to each other and to the Pennsylvania Railroad, and sorely in need of the communication facilities which by this heroic service John Davis afforded them."

The Camera Furnishes Effective Evidence in Cases of Personal Injury.

The accompanying view shows how the camera may be made to take records which become valuable in trials of suits occasioned by injury to men working upon the lines. It is exceedingly difficult to describe exactly how such accidents may occur, in language easily understood by a judge and jury unaccustomed to viewing telephone construction. A photograph taken in the manner indicated makes details clear.

Illustrating Possible Cause of Injury to Linemen.

A few years ago the value of the camera was not at all realized by telephone men, but today the number of photographs received by TELEPHONY every week shows that the telephone industry has a fair proportion of enthusiasts in the art of picture making.

Important Part Played by Telephone in Gathering War News During Mexican Insurrection.

Perhaps the present clashes of armed forces just over the Mexican border may not prove very illuminating to military students of the future, says the New York *Globe*, but for all that this particular "war" seems likely to be remembered because of the use made of the telephone by the newspaper men covering the operations. For it is no exaggeration to say that things have no sooner been done than they have been recorded in print, thanks to the ample means for telephoning provided.

Take, for example, the recent peace conference between the federal commissioners and Madero. An attempt had been made to keep this meeting secret, but no sooner had Garza left his headquarters than the correspondent at that point representing the El Paso *Herald* and Associated Press telephoned the fact to El Paso. Three other representatives of the same news gathering agencies quickly followed this with telephoned messages to the effect that two automobiles flying white flags had been seen going up the river road. The telephone also added that Gazara and his party left their automobile and crossed to Madero's camp on horseback.

Instantly four men of the *Herald* staff were hurried to the camp, one of them getting his instructions by telephone at Juarez. Three of the four met at the camp, attended the peace conference and by quick team work, again employing the telephone, had an account of the proceedings in the El Paso office of the *Herald* a few minutes after the commissioners reported.

Gathering up the loose ends of the story was easy work, and so quickly was it all done that the peace envoys on their return to El Paso were confronted with an account of their doings. And all this due solely to the quick and intelligent use made of the telephone whereby the El Paso *Herald* and Associated Press scored a "beat" and the outside world was informed almost as quickly of what had been done as though every one had attended the conference at the sun-baked insurrecto camp.

Psychological Experimenters in London Accomplish Television Over Telephone Wires.

The telephone is entering the telepathic field. W. T. Stead, the famous English writer and student, recently described as follows an experiment in television which he witnessed in London:

> A performer at the Alhambra Music Hall, who had been giving thought-reading tests, undertook to demonstrate that she possessed the faculty of using the telephone for the purpose of visualizing objects at the other end of the wire. Two committees were formed, one sitting on the stage of the music hall, the other in the *Daily Mirror* office. Members of the committee handed to the performer's husband at the Alhambra articles which they produced from their pockets, and his wife, who was at the newspaper office a mile away, described the articles in question and generally with accuracy.

Mr. Stead then goes on to describe experiments which antedated the foregoing, and which were conducted by Vincent Turvey, a retired business man, living at Bournemouth, Eng. He found that the gift of vision, while transient, was subject to cultivation, and states that Mr. Turvey finally acquired considerable skill along that line. In conclusion Mr. Stead said:

> All that I need to add to these records is that I am personally acquainted with Mr. Turvey. I have been a guest at his house, and I can guarantee that he is of the utmost propriety and a very painstaking observer. He does not look through the telephone, only when he puts the receiver to his ear he sees occasionally what is going on at the other end.

All of which seems to indicate that we are still a long way from exhausting the possibilities of the telephone. "Try this on your telephone."

Power and Telephone Companies Use One Set of Poles.

The Home Telephone Co.,, of Covina, and the Glendora Light & Power Co., have made an agreement whereby the two companies will run their lines on the same set of poles in Glendora, Cal. The light and power wires will be run above the cable of the telephone company.

Problems in Telephone Traffic Engineering

Conclusion of Valuable Paper, Presented at the Chicago Convention of the American Institute of Electrical Engineers—Was Begun in the Issue of July 1—It Touches Briefly Upon the Most Advanced and Interesting Traffic Work

By F. P. Valentine

General Superintendent of Traffic, New England Telephone & Telegraph Co.

The process by which the principles deduced from engineering studies are applied to a territory involving a large number of offices of varying sizes and volumes of traffic, may be best illustrated by taking a hypothetical case, as shown in Fig. 4.

A and *B* are fair sized offices 30 miles apart. *C*, *D*, and *E* are offices separated from *B* by 5, 8 and 20 miles respectively. *F* is between *A* and *B* and slightly off the direct line being 24 miles from *A* and 8 miles from *B*. The traffic between these offices is indicated in the table adjoining Plan 1. This traffic is shown in number of calls per day rather than per busy hour, for the sake of clearness. In the actual engineering, the busy hour loads are used.

It will be noted in Plan 1, Fig. 4, that the circuits are laid out in a way generally typical in past practice, the tendency being to furnish direct circuits between points having a fair volume of daily traffic. Under this Plan 1, there are toll

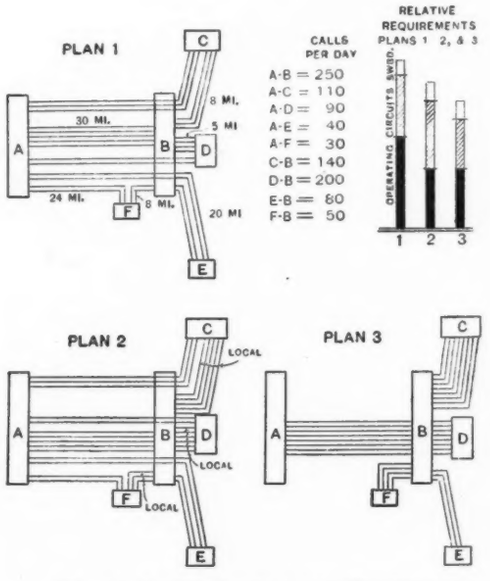


Fig. 4. Application to Large Territory.

positions or toll boards at each of the offices. It will be noted that there are 14 circuits between *A* and *B* divided into several groups, also that there is a fair amount of traffic between *B* and *C* and *B* and *D*, with slightly less between *B* and *D*.

Under Plan 2, the traffic between *B* and *C*, *B* and *D* and *B* and *F*, has been taken from the toll position or toll board and is handled on the local boards on the "short-haul" *A-B* basis. *C*, *D*, *E* and *F* continue to handle their toll traffic with *A* on toll positions and over direct circuits. At the right of Fig. 4 are shown the comparative requirements under the two plans. It will be noted that, in order to handle the traffic between *B* and *C*, *B* and *D* and *B* and *F* on a local basis through the local board, additional circuits had to be provided to place this traffic on a "short-haul" basis. This increased the circuit requirements, but made a material reduction in the operating requirements as shown, while the equipment requirements increased slightly owing to the transfer of the toll business to the more expensive local board. The composite result, however, is a substantial gain in economy.

Having placed the traffic between *B* and *C*, *B* and *E*, *B* and *D* and *B* and *F* on a "short-haul" operating basis, the way is open for still further modification. Plan 3, Fig 4, shows the next step, which is the centering of all toll operation for *B*, *C*, *D*, *E* and *F* on the toll board at *B*. Placing the traffic between these tributary offices and *B* on a "short-haul" basis will permit recording at *B* all toll calls from these points to *A*, practically without loss in time. The operators on the toll board at *B* can order up connections through toll switching operators at the tributary offices with the same efficiency and speed as with subscribers at *B*.

This plan, which has been termed "toll center operation," has several advantages. Applying the principles outlined in the section on the production efficiency of trunk and toll circuits, by combining into one group all toll circuits between *A* and *B*, each circuit can handle more calls than was the case where they were split into smaller groups as in Plan 1. The offices tributary to *B* receive practically local service with *B* and among themselves. They receive the benefits of the large team of toll operators at *B*, and the net result is a great improvement in the quality of service and greater economy in operating and in the use of equipment and circuits, as indicated in comparison No. 3 of "Relative Requirements." It will be noted that the circuits between *A* and *B* have been reduced from 14 to 8, while the total circuit mileage involved under Plans 1, 2 and 3 are 551, 620 and 436 miles respectively.

This hypothetical case illustrates the application of the engineering principles which have been outlined in the discussion of the various factors entering into efficient production. As indicating how substantially may be the results of the application of these principles to a large territory, it will be of interest to state that in the territory of the New England Telephone & Telegraph Co. are over 730 central offices, nearly every one of which formerly had its own separate toll position or toll board, although in the smallest offices the toll operation was handled in combination with the local. The application of the above principles has been carried to the extent that today the toll traffic between these 730 offices is handled at 79 toll centers. The general effect on service has been, to place all short-haul traffic on an approximately forty second or better basis; to concentrate the longer haul high grade circuits in large groups between centers; to concentrate the long-haul toll operation at these centres, with the increased economy and efficiency of a larger and more highly developed toll force; to remove from the small offices the burden of labor entailed in handling toll calls, this resulting in a smoother local service; and, through making available large groups of trunks on main routes, affording a more speedy, dependable long-haul toll service to all offices. Thus by the use of the comparative values established through development of the unit system of equating traffic and the establishment of standards of production efficiency for force, equipment and circuits, it has been possible to improve the quality of service, conserve the investment and reduce operating expenses.

Undoubtedly, the most striking development in the analysis of the toll problem is that which has pointed out the way for the evolution and systematic development of the "short-haul" system of handling toll calls.

Reference has been made to the fact that from the viewpoint of the telephone user the ideal toll-service would be that which afforded the same speed of connection to a distant point as that given in making a local connection. Having this ideal in mind, studies were made to determine to what extent this type of service could be developed economically. It was demonstrated that laws could be derived from these analyses whereby it could be predetermined, with a given volume of traffic and given average holding time per call, up to what point a suitable number and grade of circuits could be provided and furnish this type of service economically.

It was found essential, in order to furnish this "short-haul" toll service, that the calling subscriber should pass his call for the distant point by number and not for a designated party. This brought out two important factors as requisite to furnishing the means and the incentive to the subscriber for so placing his calls first, the matter of the telephone directory, that the subscriber might ascertain the number desired in the distant place; second, whether the subscriber could fairly be asked to place his call by number and pay for the connection if the distant station were reached, whether his party were there or not.

Investigation of the first factor showed that as the toll calls originated from a comparatively small proportion of the subscribers, where the amount of business warranted, directories for such other places as would meet the needs could be furnished without great expense, or special lists could be made

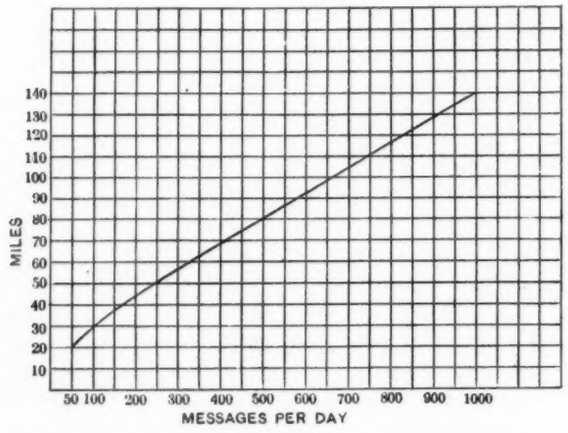


Fig. 5. Possibilities of "Short-Haul" Toll Service.

up for subscribers doing considerable business with the distant points.

In case of the second factor, analysis of several thousand toll calls to points at varying distances from the originating office showed that in 89 per cent. of the calls where the station was reached, the desired person either answered the telephon or was on the premises and available to talk, and that in 6 per cent. more there was some one at the station with whom the business could be transacted. It was thus demonstrated that in 95 per cent. of the calls, business could be successfully transacted. It further developed that there was less demand and necessity for locating a particular person on the short-haul calls than on the long haul calls, which is logical in that the more expensive long haul toll calls are not usually made unless the matter is of more importance than is the case in the ordinary short haul toll calls.

Based on these results, a plan was developed by which the "short-haul" traffic would be handled on an exclusively "two number-no delay" basis; while for greater distances, the particular person "long-haul" methods would be employed.

This plan has been gradually developed with the result that while in the year 1906 but 17 per cent. of the toll traffic of the New England company was handled on the "short-haul" basis, in 1910 over 50 per cent. was handled on that basis, while the plans under development and already partially in effect for 1911, contemplate that by the end of the year at least 85 per cent. of the toll traffic of the company will be so handled. The results so far indicate that the telephone users greatly prefer this type of fast service to the slower "particular person" service, and do not find it a serious disadvantage to forego the "particular person" privilege.

It is probable that the New England territory, with its great density of towns and cities, offers ideal conditions for the development of this type of service, but it seems reasonable to expect that the telephone using public generally, will eventually express preference for toll service of this character.

As the volume of traffic increases with the growth in the business, it will be possible to offer such service on an economical basis to a far greater extent than would seem possible without a full knowledge of the facts.

It is possible to obtain a view of some of the future possibilities in the development of "short-haul" toll service by examining the chart in Fig. 5.

The curve shown in Fig. 5 is one of a set of curves made up to cover various conditions. The basic assumptions for this curve are, the use of No. 12 copper line circuit, common battery type of central office equipment, with standard operating, equipment and line production efficiency, and an eight-hour telephone day: *i. e.*, one-eighth of the day's traffic is handled during the busiest hour.

The comparisons are between the generally used single ticket particular party "long-haul" method, and the "short-haul" *A-B* ring-down method. From this chart may be determined, assuming a given number of messages per day, up to what distance it will be possible to furnish enough circuits to permit of operating on the "short-haul" *A-B* ring down basis more economically than on the "long-haul" particular party single ticket basis. This takes into account all the factors involved that are necessary to a fair comparison.

It would seem obvious that once there is an appreciation of the latent possibilities developed by this analysis, there will be steady progress toward the development of this highly desirable type of service, which can be supplied economically in case of a substantial majority of the toll calls in a territory where there are a number of closely related communities within reasonable distance of each other.

The foregoing discussion has simply covered in a broad way a few of the important problems which have been the subject of traffic engineering study for the past few years. The general problem of telephone service is so broad, and its full consideration involves so many and such a diversity of factors, that it is difficult, within the limits of a paper of this nature, to discuss comprehensively any one of its phases.

It should be apparent that the problems in connection with the production of telephone service are of sufficient importance to call for most careful analysis. The fact that the gross annual revenue of a telephone company is but a fraction of its capital investment, wherein it differs from most lines of commercial endeavor, makes such analysis a necessity. Solution of the problems of handling the traffic is fundamental to the construction engineering and equally so to intelligent consideration of matters affecting the economic and public policies of a telephone company. The determination of values in a problem affected by so many variables and the developments of simple methods of making use of them, have offered and still offer opportunities for a high grade of engineering.

The results of the studies so far made, have demonstrated that it is not necessary to rely solely on opinion or judgment from a certain point of view; that by analytical process many factors of apparently intangible values may be reduced to known quantities; that relations between them can be definitely and accurately established; and that from these relations certain laws can be derived which are capable of general application in the solution of telephone traffic problems.

Queries on Theory and Practice

By Arthur Bessey Smith, E. E.

Cheapest Plan to Kill Cross-Talk.

I inclose a diagram showing the present arrangement of three of our farm lines. Our farm lines are all grounded lines, and we do not feel justified in making them metallic on account of the long distances between stations. We get good service from them, with the exception of the lines of which I am sending you the diagram, and on these lines the cross-talk is very strong.

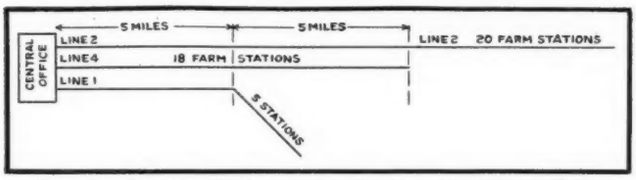


Fig. 1. Present Arrangement of Lines that Cross-Talk.

We wish to make some arrangement to reduce this cross-talk, and have two plans in mind and I would like to know which you think the better. If these do not appear feasible, can you suggest a way that the cross-talk may be reduced without making these lines all full metallic?

Lines 1, 2 and 4 are on the same pole lead for a distance of 5 miles from the central office. There No. 1, line leaves the pole lead and runs about 15 miles further to a neighboring town. Lines 2 and 4 continue on the same pole lead for a distance of about 5 miles further where the lead terminates. Line 2 continues for about 15 miles further.

Line 1 has five farm stations all beyond the point where it leaves the main pole lead. Line 4 has eighteen farm stations between the central office and end of the line. Line 2 has twenty farm stations, all of them beyond the point where 4 ends.

One plan we have in view is, to run one more wire from the central office to the point where No. 1 line leaves the main lead. Then put in a repeating coil at that point and come in on a phantom with No. 1 line, then make line No. 4 metallic by connecting the farm stations on line 4 to the two wires, and put in another repeating coil at the point where No. 4 line terminates, and let No. 2 line come in on the phantom of that metallic circuit.

By this method we would have to string only about 5 miles additional line and we would have two metallic circuits and two grounded phantoms. If we desired we

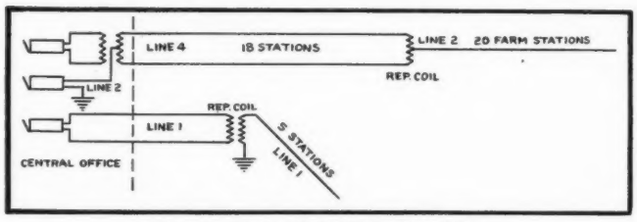


Fig. 2. Cross-Talk Reducing Plan.

could put part of the stations which are on No. 4 line onto the metallic line that would terminate 5 miles from the switchboard, thus equalizing the loads.

The point I am a little doubtful about in this plan is whether we would get good service, particularly on No. 2 line, which you note is very heavily loaded, and it is about all we can do now to ring stations on that line. If we would lose a good deal of the force of the current by putting it on the phantom it is doubtful if we could ring through.

Another idea I had in mind was to run one additional wire from the central office to the place where No. 4 line terminates, using that wire for common return for all three lines. If this plan were used a repeating coil or some other arrangement would have to be made for No. 2 line.

Please give me any suggestions that you can. I do not apprehend that we would entirely overcome the cross talk by these methods, but if we can reduce it materially by building some additional line we would like to do so.

Your first plan is the better, if carried out as shown in Fig. 2. The extra wire is to be run to the point where line 1 branches off, and a repeating coil installed so as to make No. 1 metallic from there to "central." Line 4 is made metallic by appropriating the wire of line 2. Then, by a repeating coil, line 2 is brought in to "central" as a ground return phantom, which is like the simplex telegraph circuit. You should get good ringing on line 2, since you will have the reduced resistance of two wires in parallel to offset the resistance in the two repeating coils. The total resistance of both coils will be about the same as the resistance of half of one coil; to ringing current the coils will be approximately non-inductive.

New Phantom to Relieve Overloaded Line.

Enclosed find diagram and description with question. In Fig. 1, line 1 has twenty-three telephones; line 2, no telephones; line 3, twelve telephones; line 4, fourteen telephones, three of which are between the repeating coil and *A*. Would it be practical to make a phantom circuit of circuits 3 and 4 from *A* to *B*? To do it we would cut line 2 at *B* and connect line 2 from *B* to

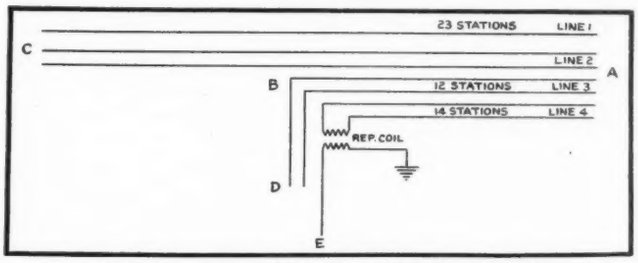


Fig. 1. Layout of Circuits to be Rearranged.

C to the phantom, leaving line 2 dead from *A* to *B*, enabling us to use line 2 from *A* to *B* to relieve line 1 of part of its load.

All of the circuits are of No. 12 BB iron wire. From *A* to *B* is six miles, from *B* to *C* eight miles, from *B* to *D* five miles, and from *D* to *E* is three miles. The bell coils of the telephones are of 1600 ohms resistance. The switchboard drops at *A* are 500 ohms and at *C* are 1600 ohms. The repeating coil has 23 ohms resistance in each winding.

Your plan is certainly very feasible and should give you excellent service. However, in order to get satisfactory ringing service you should use a heavier repeating coil than the one which you mention. This is especially necessary, since on line 4 you will be ringing through three repeating coils when calling the telephones at *E*. It should have not less than 35 ohms per winding, and be specially designed for phantom work.

You do not state the distance from *B* to the present repeating coil on line 4, but we suppose that it is several miles. It would be well to omit the present coil and run the line 4 as a single wire from the phantom coil at *B*. This cuts down your metallic circuit to two coils through which you would need to ring.

Dakota Central Wins Huron Rate Case.

A decision of the South Dakota Railroad Commission upholds the rates of the Dakota Central Telephone Co. at Huron. The decision will be reviewed in a future issue of TELEPHONY.

Cable Testing in a Multi-Office Telephone Exchange—Equipment and Records for Efficient Work.

By C. E. Rogers.

One of the most important features of a telephone system is the proper maintenance of the cable plant. In the following article I will give a brief outline of a method used to report and locate cable trouble in the least possible time.

I shall presume that the condition of the cable plant is looked after by the equipment department, which department in turn will notify the construction department of such repairs as may be necessary.

When cable trouble is known to exist the wire chief will

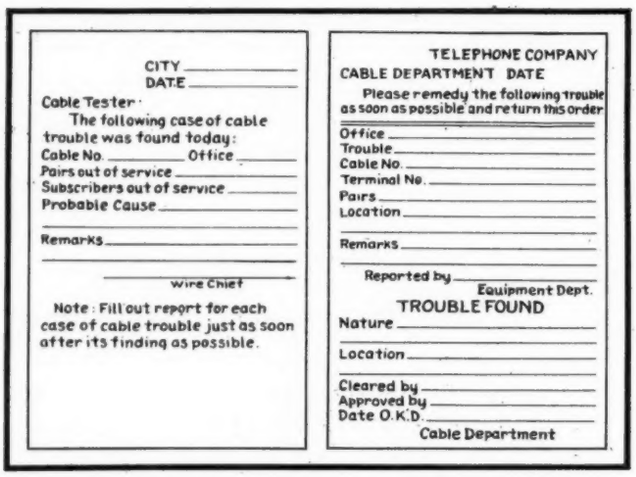


Fig. 1. Wire Chief's Report and Cable Tester's Order.

make out form 1, (at left of Fig. 1) in duplicate, retaining one copy to be verified by the cable tester when the trouble has been cleared, and sending the other copy to the cable tester.

The cable tester will then locate the trouble and fill out form 2, (at right of Fig. 1) in triplicate, sending two copies to the construction department, one for the cable splicer and the other for record, and one copy for the equipment department. If necessary to open a splice for a test the same form (No. 2) is used.

After clearing the trouble the cable splicer fills out the re-

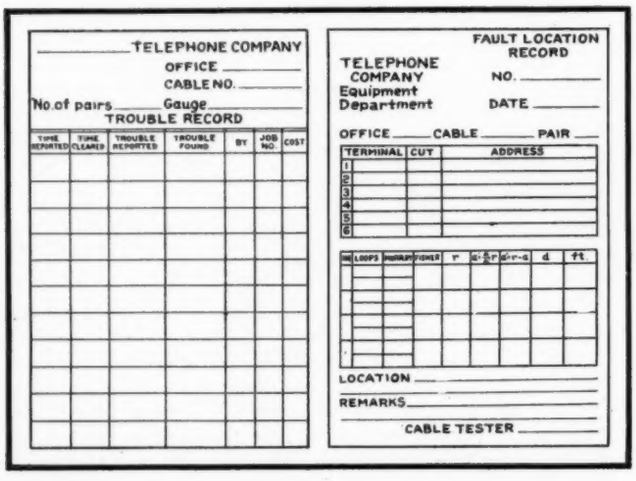


Fig. 2. Record of Trouble Items—Location Record.

mainder of form 2, giving the nature of the trouble and place where it was found.

The cable splicer's foreman approves the work done in his department.

From the daily time cards the cost of each job is computed and filled into form 3 (left of Fig. 2) which with form 2 make a complete record of all cable trouble.

In cable testing there should be a close co-operation between the equipment and construction departments, as this greatly increases the rapidity of clearing any trouble.

In what follows I will give only the methods used for locating crosses, grounds, and "shorts," as one does not need to do quick locations when working on the other classes of trouble.

All cable testing is done from a cable desk at the main office, when possible. To the branch offices two or more pairs whose electrical constants are known are used for testing purposes.

In all testing for the location of crosses, grounds and shorts, I use the modification of the Murray loop due to H. W. Fisher, as this loop test is by far the most accurate for locating the above troubles. The Fisher loop test enables one to eliminate any error due to a difference in the resistance of the good and bad wires.

This difference may be due to several causes, among them being poor connections in the good or bad wire or to a difference in their length.

The latter cause rarely makes a difference of over 1 per cent. when the good and bad wires are in the same cable. If over 1 per cent., the tester should use another good or bad pair, as the case may be.

One cannot be too careful in making fault locations as mistakes are expensive, not to mention the subscriber's dissatisfaction on account of prolonged interrupted service. In order to avoid mistakes the tester must have a check location using another bad wire in the cable under test.

Time should not be wasted locating the same fault by another loop test. Correct maps and good notes are indispensable to the cable tests.

An excellent form for fault location notes is given at the right of Fig. 2, which can be changed if other than a Leeds & Northrup company's Wheatstone bridge is used.

Postal Line Taken Down to Allow Removal of Spook Rock.

The accompanying illustration, reproduced through the courtesy of *The Postal Telegraph*, shows the famous "Spook Rock," east of Little Falls, N. Y. This stood in the highway

Spook Rock Near Little Falls, N. Y.

and many automobiles had close calls from head-on collisions, because the rock cut off the view of the road, preventing drivers from seeing any one approaching from either east or west. The rock has been blown out to prevent such accidents. The Postal line, which hung directly over the rock, had to be taken down and cable run in to allow the contractors to blast.

Raise in Rates Granted Waco Independent Company.

Permission has been granted by the city commission of Waco, Texas, to the Home Telephone Co. to raise its rates on business telephones from $3 to $4 per month as soon as the number of telephones in use shall be increased over one-fifth of the present number.

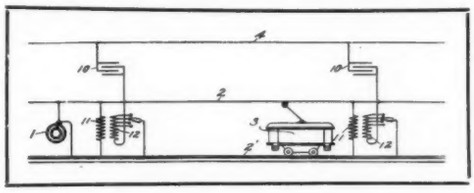
From the Patent Office

Max W. Zabel

Neutralizing Inductive Disturbances.

J. B. Taylor, Schenectady, N. Y., patent 996,376, June 27, 1911, assigned to General Electric Co., New York.

Herein is disclosed a system for neutralizing inductive disturbances in telephone lines. Conductor 4 is supposed to represent a telegraph or telephone circuit, and conductor 2 a single phase trolley conductor. The disturbances between the conductors 2 and 4 are due to their forming a condenser, and



changes in the potential of the conductor 2 are inductively transferred to the conductor 4.

To avoid the disturbances condensers 10 are used, one terminal of each of which is connected with the wire 4 and the other with a source of potential which is always in opposition to the potential of the trolley wire. This source of potential is obtained from the transformer 11. The other terminal of the condensers is then connected to ground as shown. Adjustable means are illustrated to adjust for the necessary constants.

Reinforcer for Telephone Circuits.

E. F. W. Alexanderson, Schenectady, N. Y., patent 996,391, June 27, 1911, assigned to General Electric Co., New York.

The invention herein is designed to provide a reinforcer for telephone circuits and is constructed on the principle that any alternating current generator having a small initial field magnetization may be brought up to full field strength without any field winding if the armature is connected to a suitable condenser so that the armature re-action of the condenser current magnetizes the field. If the condenser is tuned so that the circuit is approximately at resonance, the field strength will be proportional to the original or residual magnetism, but many times as great.

Now if a machine with the armature circuit thus tuned by a condenser has its field circuit connected to the telephone circuit, the voltage in the telephone circuit, due to the telephone current, will be impressed upon the field circuit of the machine, producing therein the initial magnetization. This is increased by armature reaction many fold, and the increase in field flux reacts inductively upon the field circuit. The result in that the electromotive force returned by the generator field to the telephone circuit is many times greater than the electromotive force originally impressed upon the field.

Common Battery Lock-Out Telephone System.

H. J. Roberts, Evanston, Ill., patent 996,143, June 27, 1911, assigned to Homer Roberts Telephone Co., Chicago, Ill.

A common battery lock-out system amongst other features has means whereby when any station is calling in it is automatically locked into circuit when the central operator starts her mechanism into operation. The line is made up of a plurality of sections between each pair of instruments so that one section after another is brought into operative contact with the line as the step-by-step devices at the central station are being operated. A grounding relay automatically establishes a ground connection at the end of the party line which results in restoring the line to normal after all the sections have been connected in.

Apparatus for Checking the Use of Telephones.

O. Schmid, Heilbronn, Germany, patent 997,012, July 4, 1911.

A mechanism is set forth herein which is to be used in connection with telephones whereby to check and keep a record of conversations, apparatus is provided which is adapted to feed a strip of paper. Whenever the receiver is removed from the hook it cannot be replaced unless the mechanism, which feeds the paper, is actuated. The user of the telephone is supposed to write upon the paper thus fed out the general nature of the conversation, thus to check the number and character of conversations.

Combined Telephone and Electric Lamp.

F. J. Kerbel, New York, N. Y., patent 996,770, July 4, 1911.

A combined telephone and electric lamp which has a base and a standard in which the switch-hook is mounted. A bell-shaped hood is provided at the top of the standard, within which lamps are mounted and on which the transmitter is mounted. The bell is adjustable, and can be used to concentrate the sound in the transmitter, or as a shade for the lamps.

Telephone Systems.

J. B. Stemm, Chicago, Ill., patent 995,924, June 20, 1911.

A telephone system disclosed in this patent is designed for use between two comparatively proximate points to replace speaking tubes. It consists of two transmitters, each having a diaphragm to which is secured a horseshoe magnet. The legs of the shorseshoe magnet project into, and are movable in two coils. The coils are connected, and conversation over short distances may thus be carried on by means of this device.

Public Service Corporation Management Studied at Massachusetts Institute of Technology.

Professor Jackson's lectures on the Organization and Administration of Public Service Companies at the Massachusetts Institute of Technology were attended by a class of twelve graduate students during the past year.

Besides graduating the largest class from the undergraduate course which the Institute of Technology has heretofore graduated in electrical engineering, one degree of Doctor of Engineering and four degrees of Master of Science were conferred on men taking their major work in electrical engineering.

The applicants for permission to become candidates for advanced degrees in electrical engineering are already more numerous than they were last year, and particularly is this true in respect to graduate students who intend to study the problem of electric railroads, electric transmission of power and the organization and management of public service companies.

Georgia Company Wins Rate Case.

The Dawson Telephone Co., of Dawson, Ga., was granted permission by the Railroad Commission of Georgia to raise its rates to subscribers from $1.50 and $2.00 to $2.50 and $3.50. The application for this raise was fought vigorously by the city, claims being made that the company was under contract to give service at the lower rates. An injunction was secured by the city, but the company continued charging the increased rates, filing a bond pending trial of the case.

The case was brought up before a Superior Court judge in April, was decided in favor of the telephone company and the injunction was dissolved.

An appeal has been made by the city authorities to the Supreme Court of Georgia, where a hearing is still pending.

Death of O. F. French.

Orrin F. French died at the Buffalo Hospital, on the evening of July 13, following an operation for appendicitis.

Mr. French was born July 12, 1873. He graduated from Case School of Applied Science, Cleveland, in 1898, and immediately entered the employ of the Federal Telephone Co., which controlled a number of small exchanges in northern Ohio. In 1903 he was appointed general manager of the Cuyahoga Telephone Co., Cleveland, which position he held until 1906, when the Brailey interests took over control. He spent a year as chief engineer of the National Engineering Corporation, which was then developing the Clement automanual apparatus. In 1907 he was appointed Deputy Commissioner of Telephones and Telegraphs for the Manitoba government, with headquarters at Winnipeg, where he remained for two years.

Orrin F. French.

In 1909 he was appointed division commercial engineer of the New York Telephone Co. at Buffalo, which position he held until his death.

He was widely known in the telephone world. A man of striking physique, he possessed an abundance of good nature, and a will that stopped at no obstacle.

The funeral took place from the residence of his father-in-law, Mr. Wilcox, in Ashtabula, Ohio, on the afternoon of July 15, and was one of the largest funerals in the history of the city. He leaves a wife and two children.

Among the pallbearers were F. B. Schrader, New York Telephone Co., Jersey City, N. J.; J. R. Lillich, New York Telephone Co., Buffalo, N. Y., and J. P. Boylan, Cleveland, Ohio.

Discovered, in New York, a Bank with $40,000,000 of Deposits and Not a Telephone.

Every banker in New York City has a telephone upon his desk—except one, says a writer in the New York *Globe*. Henry Parish, head of the New York Life Insurance & Trust Co., one of the two oldest fiduciary institutions in the city, has never permitted a telephone to be installed within its walls.

"We do not need a telephone," said one of the officials. "We believe that business that is worth doing is worth a letter or a personal interview. We do not want any other sort."

That sort of thing might happen in London, perhaps, but it is almost inconceivable in New York. It is to be doubted if any other bank of the first rank in the world is without a telephone. And the New York Life Insurance & Trust Company is of the first rank. It was chartered in 1830, its assets are approximately $44,000,000, and its deposits have increased from $6,000,000, at which figure they stood when Mr. Parish became president in 1871, to almost $40,000,000 today. And the lack of a telephone is not the only manner in which it differs from the modern bank. It has never advertised and it refuses to accept a corporation or public trust or an active deposit account. Although its offices at 52 Wall street are in the very heart of the financial district an air of calm prevails within them. The colored messengers speak deferentially, in voices carefully modulated. Clerks walk across the wide office spaces almost on tiptoe. The clatter of a typewriter in the distance seems not merely anachronistic but profane.

"It is quite true that we never had a telephone in the trust company," said Henry Parish, Jr., the second vice-president. "Years ago I rather resented the joking of my friends, who insisted that the trust company was old-fashioned, and that we were behind the times. But lately I am somewhat more than resigned to it—I am rather proud of the distinction."

Maryland Commission Allows Ten Cent Rate From Hotel.

One of the first conflicts in the telephone rulings of different commissions has arisen in the matter of a ten cent charge from hotel pay station booths. The Wisconsin Commission condemns the ten cent rate, while the complaint against it has been dismissed by the Maryland Commission.

The opinion of the latter accepts the telephone company's plea that it had no control of the booth or of the service rendered by employes of the hotel and suggests that future cause of complaint will be avoided if the hotel removes the word "public" from the booth signs, to imply that the primary purpose of the booth is to serve guests of the hotel.

Unfortunate Result of a Late Storm in Nebraska.

The picture here reproduced is furnished through the courtesy of J. H. Gesler, manager and secretary of the Union Telephone Co., Bloomfield, Neb. The storm which took this line down occurred on Monday, May 1, and was one of the worst sleet and snow storms in the history of Knox county. Mr. Gesler says he has lived in Knox county for twenty years, and this is the only time he has lost a lead. This time, however, he got hit pretty hard. His country lines and toll lines were down in several places. In forty-eight hours after he was working again.

Service Was Restored Within Forty-eight Hours.

Occurrences such as this show the desirability of providing ample reserves so that when the storms come the money will be on hand to make replacements without stopping development.

Illinois Traction Line Interference Case in Court.

The case of the Bell telephone company against the Illinois Traction System, which has been continued in the master in chancery court in Logan county, having been started first before the late Master Tomlinson, has been taken upon again before Master W. R. Baldwin. The case is of great importance and has brought to Lincoln some of the ablest lawyers and electrical experts in the country. The traction company stretched feed wires carrying 33,000 volts parallel with the telephone wires of the telephone company, along Elm park in Lincoln.

Legal Cases and Decisions

By A. H. McMillan

Ought Telephone Company to Have Known the Condition?

Suit has been brought against the ..... Home Telephone Co. by a citizen of ....., in the sum of $300 for the loss of a valuable horse.

I will state the case briefly and we will greatly value your opinion or any opinions that you might cite which have been rendered in similar cases.

A ranch owner caused the..... County Power Co., to construct a power line across his field to supply a motor in his private pumping plant.

The power company used 4x6-in.x24-ft. poles carrying 2,300 volts, primary circuit. The ranchman afterward requested the telephone company to install a telephone in the pump house using the same poles, the wires being bracketed from four to five feet below the power arm.

The following year the owner leased the land to another and discontinued the telephone service, and the wires were disconnected where they enter upon his property.

The use of the pumping plant was also discontinued, but the wires were left "hot." These conditions remained for two years, until a few days ago a tree fell across the end guy, springing the last pole forward about three feet and slacking the power service wires very low between the pole and the house, where they were attached to brackets about nine feet from the ground.

At the same time the telephone wires were snapped in the last span, the ends falling to the ground. This condition remained several days without the knowledge of the telephone company until after the horse was killed. A power company employe had, however, visited the scene and noted the power wires were not broken, but took no note of the telephone wires.

Mr..... was permitted by the lessee to turn his horse into the pasture while this condition prevailed. The horse became tangled in the dangling telephone wire, carried it around between the pole and the pump house and upon an embankment at which instant it came in contact with the slack power wires. The horse fell over dead into the reservoir, it having completed the circuit to ground from the 2,300 volt service wires.

The power company and the telephone company are on friendly terms and interchange poles in many places.

The question in the case seems to be whether or not the telephone company ought to have had knowledge of the condition of the wire in the pasture where the horse was killed. In other words, the jury would be instructed to determine whether the wire was down long enough so that the failure of the telephone company to know the condition was negligence. See Fitch vs. Central New York Tel. & Teg. Co. 59 N. Y. S. 140; Parsons vs. Charleston, etc., Electric Co., 43, S. E. 284, 69 S. C. 305.

Kentucky Interstate Commerce Commission.

I would be pleased to have your opinion, also decisions, if there be any in regard to telephone and telegraph companies operating under the Interstate Commerce Commission in Kentucky as follows:

After a telephone company has an established rate and in order to fight competition reduces this rate, can this telephone company ever increase its rates thereafter?

Also is it lawful under such commission for a telephone company to cut rates in order to secure its competitors' business?

What is the proper manner of procedure in reporting cases of discrimination in Kentucky?

Also has a telephone company the right under this commission to embody in its franchise and donate to the city officials and city proper, telephones that the competing company does not donate nor is not required to donate, by its franchise?

After a telephone company has reduced its rates to meet competition, it can increase its rate if permitted to by the Inter-State Commerce Commission. It has not been determined whether the anti-discrimination features of the law prohibit a company from cutting rates in order to get business. The proper manner of procedure in reporting cases of discrimination in Kentucky is laid down in the rules of the Interstate Commerce Commission. A letter to the commission will probably bring the information. You are also advised to ask the commission concerning your right to furnish free telephones to the city. You undoubtedly would have a right to provide for free service in your franchise, but the question would be whether or not such free service could lawfully be given, even if so provided for.

Does Sale of Farm Include Telephone.

As attorney for the..... Telephone Co., of..... Missouri, we are writing at the suggestion of its manager.

We wish to know whether or not a farmer having a telephone regularly installed in his house on his farm, upon the sale of the farm, without any reservation in the deed of conveyance, can remove the telephone from the wall of the house and take it with him without being liable to the purchaser in an action for damages for thus removing the telephone.

In a discussion on this question our attention was called to the case of the Badger Lumber Co., vs. Light & Power Co., 92 Pacific Reporter, 476 (Kansas).

We have gone through the Pacific Reporter very carefully and have been unable to find the case cited.

Will you be kind enough to cite us any authority that will aid us in determining the right of sellers and purchasers having a telephone installed in their farm houses, when in reservation is made in the deed touching the subject of telephone.

The following cases hold that a telephone system is real property. They may help you in deciding the question in your case: Regina v. North Staffordshire Ry. Co. 31 U. & U. 392; American Union Tel. Co. vs. Middleton, 80 N. Y. 408; N. Y. Ont. & Western Ry. Co. vs. Western Union Tel. Co., 36 Hun. 205; Boston Safe Deposit & Trust Co., vs. Tel. Co., 36 Fed. 288; Western Union Tel. Co., v. State, 9 Baxt. (Fed.) 509; Shelbyville Water Co., vs. People, 140 Ill. 545; Forges vs. Electric Co., 19 Ore. 61; Frechet vs. Drake (Ariz.), 12 Pac. 694. See also Reiley vs. Stephenson (Mo.), 94 S. W. 781; Meinhart vs. Draper 112 S. W. 709. The case of Badger Lumber Co., vs. Light & Power Co., is found in 29 Pac. 476, not 92 Pac. The case of Readfield Tel. & Teg. Co., vs. Cyr. 49 A. 1047, 95 Me. 287, holds that a telephone line, when erected in the streets of a city, retains its character as a chattel and may be seized and sold on execution as personalty.

Pole Tax Decisions of Pennsylvania.

Please furnish us with a list of recent decisions of the Supreme Court of Pennsylvania in the matter of pole tax.

The following are some of the recent cases: Board of Kittaning v. W. U. T. Co., 26 Pa., 346; Delaware & At. Teg. & Tel. Co.'s petition, 73 At., 175; Schellsburg v. W. U. T. Co., 26 Penn. Super. Ct. 343; Borough vs. Deleware and Atlantic Tel & Teg. Co. Atlantic Reporter, July 3, 1909; Norwood Borough v. W. U. T. Co., 25 Pa. Super. Ct. 406; Braddock Borough v. Alleghany Tel. Co, 25 Pa. Super. Ct. 544. The following is a Pennsylvania case that went to the Supreme Court of the United States: Postal Telegraph Co. v. New Hope 5 Advance Opinions (Law Edition) 205.

Exchange Installed at Greensburg, Ind.

A new building has been erected by the Decatur County Independent Telephone Co., at Greensburg, Ind., and complete new equipment will be installed therein.

General Manager, Wm. F. Qualls, in a recent letter to TELEPHONY, reported that within a few days work would be started upon the installation of the new board.

From Factory and Salesroom

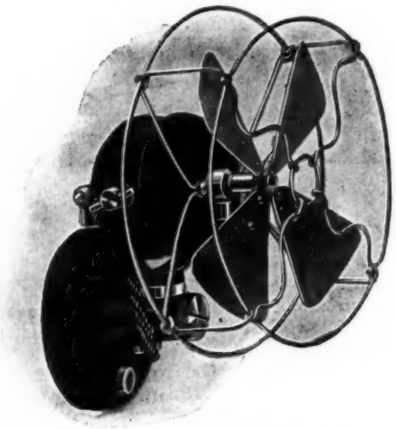
Conventions: North Dakota, Bismark, August 15, 16

Two Carleton Company Specialties.

The Carleton Company, of Boston, well known as the manufacturers of the popular "Imp" Torch, reports an extremely large sale of its 1911 six-inch Dervish Fan.

While the fan has many uses, because it is adjustable to any angle and because it is absolutely noiseless, it is particularly desirable for telephone booths and for sick rooms, hospitals and similar places.

The accompanying cut shows the Dervish as a bracket fan,



Convertible Wall and Desk Fan.

but by an ingenious and simple adjustment it is changed to the regulation desk type. The finish is black enamel with guard and blades of heavily nickeled brass, and all other bright parts nickeled. The commutator is of the built-up type with twenty segments of hard copper; the mica insulating strips are punched to fit and clamped in place under heavy pressure. The bearings are bronze and are of generous size. The brushes are carbon, with copper gauze core and are claimed to be practically non-wearing.

There is said to be no sparking, the current consumption being about one-quarter that of the ordinary incandescent lamp.

The fan is guaranteed and is made for 110 volt D. C.; 110 volt A. C.; 60 cycles, and 6-volt battery current. It sells for $6.50, with a very liberal discount to the quantity buyer. The fan, it is said, should have a large sale for telephone booths alone, aside from its many other uses.

Herewith is also shown a cut of The Carleton Company's "Imp" Blow-Torch. This torch, the manufacturers state, will

Not a Toy but a Practical Torch.

heat or solder anything. It is not a toy, but a practical torch of small size, which will do as much work as a large one.

It starts with a match, has no pump or valve, is entirely automatic and burns two (2) hours on one filling. It is suitable for hand or bench work and produces a perfect Bunsen flame of 2,000 degrees Fahrenheit.

The corrugated neck is claimed to largely increase the heating surface and to create a greater pressure than could otherwise be produced. This has been adopted as a soldering torch by the New England Telephone & Telegraph Co., after severe tests in the engineering department and actual use by the men.

The retail price of the "Imp" Torch is $1.50; the price per dozen, $12.00. Quantity prices will be furnished on application to The Carleton Company, 170 Summer street, Boston, Mass.

Quick Action by a Rapid Truck.

The accompanying illustration shows a Rapid three-ton truck returning with the wrecked Moisant Monoplane No. 13, in which sky-pilot St. Croix Johnstone nearly lost his life during the recent aviation meet in Detroit.

The truck, which was stationed on duty at the grounds, arrived at the scene of disaster nearly as soon as the ambulance and hurriedly loaded the wreck to save it from souvenir collectors, while Johnstone was being borne to the hospital. The fatal "13" which Johnstone flaunted in fortune's face by printing it on the machine's rudder is plainly seen in the picture.

Rapid trucks, manufactured by the Rapid Motor Vehicle Co., Pontiac, Mich., were specified by the management of the aviation meet to handle all of their frail machines during the

On the Spot After the Accident.

exhibition, and they were all placed in the hangars without a mishap.

Hauling flying machines is a very delicate task, and it is well known that aviators are extremely particular about the handling of their craft. The employment of Rapid trucks, therefore, speaks very favorably of their reputation for dependability and easy riding qualities.

S. T. Atwater is presenting a proposition to telephone companies whereby their solicitors and collectors can add to the revenue of the company. Mr. Atwater's proposition is in the nature of a telephone memorandum pad which supplies the live need for some place to note information received. The paper is in a roll so that only the amount required need be torn off. This Atwater pad is rapidly gaining favor among telephone users and, it is claimed, is a very easy seller. Solicitors and collectors can dispose of them while they are on their usual visits. All information regarding the Atwater pad will be sent by S. T. Atwater, 335 Broadway, New York City.

Harry G. Webster Opens Office in Chicago.

Mr. H. G. Webster, who has recently announced his withdrawal from the engineering and patent departments of the Kellogg Switchboard & Supply Company, with the purpose of starting a private practice, has had a most interesting and fitting training for this work.

In 1888 he entered the employ of the old Michigan Telephone Co. as general utility man, working up through every department.

In 1891 he was transferred to the Northwestern Telephone Exchange Co., at Minneapolis, and was in turn manager of a number of the important exchanges in Minnesota and the Dakotas.

He resigned in 1900 and entered the employ of the Stromberg - Carlson Telephone Mfg. Co.

By June, 1901, he had had charge of switchboard installation work at Duluth, Minn., West Superior, Wis., Marshalltown, Iowa, Warren, Ohio, Savannah, Georgia, and Youngstown, Ohio.

He made a record job in Akron, Ohio.

He also finished the Rochester, N. Y., switchboard installation, remaining until the plant was accepted by the local company.

Finally, he came back to Chicago.

He evolved the Stromberg-Carlson two-wire differential relay system in 1900.

This was a great advance in the art.

In the meantime, he had installed switchboards in Ashville, N. C., Boston, Camden, N. J., Johnstown, N. Y., and Cortland, N. Y.

Then he installed his own differential relay system at Gloversville, N. Y., the first two-wire multiple without a ground at substation.

It was the beginning of big multiple board work on modern lines in the Independent field.

In 1901 he started with the Kellogg Switchboard & Supply Co., working on common battery development. He made a great number of inventions.

Mr. Harry G. Webster.

When the change in Kellogg control came about, he resigned to rejoin Stromberg-Carlson.

In August, 1902, he gave his first expert testimony—really the first physical-connection case—for the Nashville Independent company.

Then he joined Milo G. Kellogg, and in his Chicago laboratory developed apparatus and circuits which have made his name familiar to all who follow the patent office records.

He has been connected as expert with the following important patent suits:

Western Electric Co. vs. Rochester Tel. Co.—Busy Test.

Western Electric Co. vs. Rochester—Double Supervisory.

Western Electric Co. vs. Galesburg—Double Supervision and Busy Test.

Western Electric Co. vs. Akron—Supervisory.

The Bell company hoped to establish a monopoly of double lamp supervision on these cases but failed signally:

Western Electric Co. vs. Zanesville—Line Signal Control.

Western Electric Co. vs. Dean—Key.

Western Electric Co. vs. Sterling—Busy Test.

Western Electric Co. vs. Kinloch—Fundamental Automatic Ringing Patents.

Western Electric Co. vs. Kinloch—O'Connell Key.

Hibbard vs. Kinloch—Automatic Ringing.

The Kinloch Telephone Co. won a victory on automatic ringing. Mr. Webster sprung an unknown reference—made a model and was awarded the victory.

During the past eight years he has filed in the neighborhood of one hundred applications for patents, and some of his inventions have come into extensive commercial use.

Since the year 1900 it has been part of his regular work to prepare and prosecute patent applications, to consider the validity of patent claims, and to investigate and report upon questions which arise in connection with interference proceedings before the patent office. He has also made numerous investigations of proposed developments of machines, telephone apparatus and circuits designed by others, with particular regard to their novelty and utility, and to report upon questions of infringement of issued patents by existing or proposed structures.

While with Mr. Kellogg, his work was largely in connection with the development of semi-automatic and automatic systems.

During all these years he has been investigating these devices.

Owing to the character of their construction, Mr. Webster's experience enables him to take up any difficult mechanical, as well as electrical development, and carry it to successful conclusion.

No man has been more uniformly successful nor is better qualified to serve in patent and engineering matters. His experience in the automatic field, and his knowledge of the automatic patent situation, have been broadly developed.

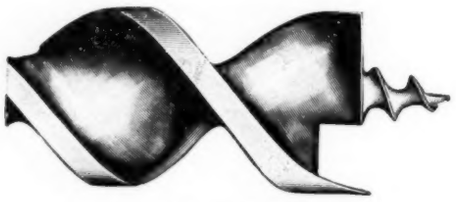
His offices are at 1048 Marquette Building, Chicago.

Here his services will be available for all forms of engineering development work, consultation, patent investigations, and as an expert in patent causes, bearing not only upon electrical, but also upon mechanical devices.

The "Red Devil" Electrician's Bit.

Smith & Hemenway Co., 150-152 Chambers street, New York City, reports a constantly growing demand for its "Red Devil" Electrician's Bit, shown herewith.

This bit is made for exceptionally hard usage by electricians such as tapping brick walls and boring through knots, partitions, etc. The size of the throat is declared to be about four times that of the opening of other makes of bit and the cutter is so constructed that a lineman can grind the bit on any kind of a stone for re-edging.



A Special Bit for Electrician's Use.

The company again calls attention to the fact that it will have a "Red Devil" tool catalog of electricians' tools of over ninety varieties ready for delivery at an early date. Those interested in this class of construction should ask for a copy of this catalog.

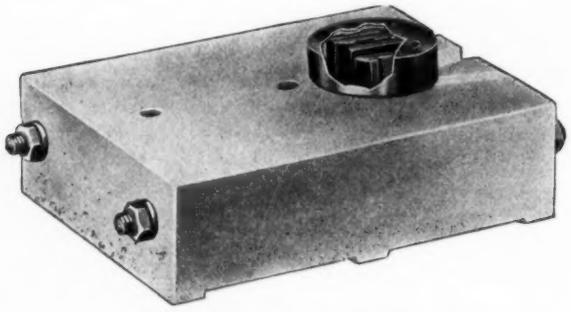
Klein's Business Increasing.

Mathias Klein & Sons, of Chicago, makers of linemen's and other construction tools, informed a member of our staff that their present volume of business and orders is exceeding that of past years. One noticeable point in particular is the foreign customers that this company is making. This can only mean that the name Klein is becoming better and better known.

A new catalog, listing the company's entire line of tools, is now ready for distribution and copies of it may be secured for the asking.

Cook's Type B-10 Protector.

Frank B. Cook, 900 West Lake street, Chicago, has recently placed on the market a new protector, known as Cook's Type B-10, which is here shown. It consists of the combination of the fuse and carbon arrester mounted on a heavy porcelain block, provided with special tubes molded into it at either side for the reception of the fuse wire, and substituting for the ordinary composition fuse used on other types.



New Type of Cook Protector.

The fuse wire is attached at each end of the block to substantial brass terminals and is easily and quickly removed and replaced when necessary. The carbon arresters are treated with Cook's patented process, which, it is claimed, renders them practically carbon-dust and carbon-ground proof. The metal cap prevents arcing and consequent danger to draperies or curtains.

Full details regarding this and other Cook specialties, with prices, may be obtained from the manufacturer.

Change of Name.

The Home Equipo Co., of Pleasanton, Kansas, has changed the name of its telephone disinfectant from "Red Cross" Telephone Disinfectant to "Gillette's" Telephone Disinfectant.

The company is ready to furnish all concerns which ask it with enough material and display cards to test the idea that sanitary telephones will draw trade. If managers will send in their names and enclose two 2-cent stamps, they will receive by return mail a sample of Gillette's Telephone Disinfectant and a display card to hang on the booth or pay station telephones. A booth telephone that is clean and sanitary will increase receipts over all its former records. Why not put into effect this theory which may prove of financial benefit to all who operate telephones of this kind?

A Prominent Manufacturing Company is offering telephone companies an unusual opportunity to acquire serviceable condensers at a very low cost. These condensers were rejected by the company's engineers on account of minor defects but are still capable of hard service. The complete announcement of this sale is given in the advertising section of Telephony.

The Rebuilt Telephone Equipment Co., 2050 West 21st street, Chicago, has its bulletin No. 1 ready for distribution. This bulletin is descriptive of the company's extensive line of rebuilt common battery equipment. E. C. Stoeffhaus, who is at the head of the company, is experienced in rebuilding telephone apparatus and with the facilities now at his disposal expects to "make things hum." Bulletin No. 1 will be sent free on request.

Johns-Manville Conduit at Albany, N. Y.

T. Henry Dumary, contractor, is engaged in laying 500,000 feet of H. W. Johns-Manville conduit in the city for the Municipal Gas Company, electric department, Albany, N. Y., in accordance with the terms of an ordinance requiring the placing of all wires in the business section underground. Mr. Dumary reports that the conduit is the best thing in that line he ever handled.

Growth of Winnipeg's Government Telephone System.

Under the title "Triumphs, Trials and Tribulations of the Telephone" there appears in the Winnipeg, Man., *Saturday Post* an article telling how the government has built up the telephone system and some of the circumstances of the work carried on.

When the Manitoba government took over the telephone system, the business in Winnipeg was all done through one exchange—Main. It had a capacity of 10,000 lines and there were one hundred and twenty-five operators employed. Later, because of the great demand for telephone service and the inability of the Main exchange to cover it, the Fort Rouge exchange was built. This was followed by the building of the Sherbrooke and the Garry exchanges. The Garry exchange, which cost approximately $260,000, is now used as the central building for carrying on business, all the official offices being located in it.

Still another exchange—the St. John—is now under construction. The building will cost $40,000. The total cost for buildings and equipment of new exchanges built under government ownership is given as $715,000.

Citizens' Company of Grand Rapids, Adjust Rates.

Rates are being equalized in about twenty Michigan cities and towns by the Citizens Telephone Co., of Grand Rapids. Subscribers paying low rates on old contracts will hereafter pay the same scale as those who have become subscribers more recently, at a higher rate. This is in accordance with the decision in the Holland case, and the anti-discrimination feature of the Giles law, which will go into effect August 1.

Condensed News Reports

Officers of companies are earnestly requested to forward us promptly all financial and other statements as soon as issued and any items of interest as to their plants and systems

PERSONAL.

J. C. RODMAN, of Parsons, Kan., will take charge of the Cherokee Telephone exchange, at Cherokee, Kan., in the place of Carl Lane.

E. R. WESTCOTT, of Beatrice, Neb., has been appointed superintendent and wire chief of the Mutual Telephone Co., Summerfield, Kan.

W. N. DAVIDSON, of Beatrice, Neb., has been recently appointed superintendent of the Gage County Independent Telephone Co., Blue Springs, Neb.

J. D. HESS, JR., formerly of Detroit, has taken charge of the commercial department of the Grand Rapids part of the district for the Michigan State Telephone Co.

EUGENE DARNELL, formerly of Carrollton, Mo., has been appointed district plant superintendent of the Coffeyville district for the Missouri & Kansas Telephone Co.

THEODORE N. VAIL, president of the American Telephone & Telegraph Co., received the degree of A. M. from Dartmouth College at the annual commencement exercises of that university.

W. B. HARPER, secretary and assistant treasurer of the Peoples Home Telephone Co., Birmingham, Ala., has tendered his resignation. He has been with the People's company for five years.

J. E. SCOTT, formerly division manager for the Bell Telephone Co. at Lansing, Mich., has been made traffic manager of the Grand Rapids district and has assumed his duties at the local office.

P. V. JORDAN, formerly manager of the Bell Telephone Co.'s business at Sedalia, has gone to Joplin, Mo., to take the position of superintendent of traffic for the Joplin-Springfield division of that company.

WALTER W. NICHOLSON has been made president of the Rochester, Syracuse & Utica Telephone Co. Mr. Nicholson has spent many years in the telephone business and is familiar with all its details, enterprising and aggressive.

JUSTINIS HELGREN, Omaha, Neb., has been appointed district superintendent for the Nebraska Telephone Co., with headquarters at Norfolk. Mr. Helgren has been connected with the local office of the Nebraska Telephone Co. for over a year.

CHESTER C. FAILING, who has been district manager of the Michigan State Telephone Co., has been promoted to the office of district plant chief, with headquarters at Saginaw. Mr. Failing's promotion is a recognition of his ability and commendable service.

D. C. COX has been appointed division general manager of the New York Telephone Co. in Syracuse. He will take up the commercial work of the company, which has been in charge of Walter W. Nicholson, recently elected president of the Rochester, Syracuse & Utica Telephone Co.

MICHAEL I. PUPIN, professor of electromechanics in Columbia University, has been designated to serve as director in the Phoenix Research Laboratories. In this capacity, Professor Pupin will be in general charge of the development of the research work in the department of physics.

CLARENCE W. MACKAY, president of the Postal Telegraph Co., and Commercial Cable Co., has sailed for Europe on the North German Lloyd steamer Kaiser Wilhelm II. Mr. Mackay will be absent for six weeks, going direct to London first. He stated that the first three weeks in Europe will be spent inspecting the cable stations of his company in Europe and the last three he will devote to shooting in Scotland.

WALTER W. HILLER, Milwaukee, Wis., assistant treasurer of the Wisconsin Telephone Co., has been appointed supervisor of collections in the new combination of Bell telephone systems in the middle west, his territory embracing Wisconsin, Ohio, Illinois, Indiana and Michigan. His headquarters will be in Chicago at the central offices of the affiliated companies. Mr. Hiller has been in the service of the Wisconsin Telephone Co. for twelve years, becoming assistant treasurer four years ago.

WALTER F. HENKEL, inspector of traffic, telegraph and telephone department, Panama Railroad, Colon, Republic of Panama, is visiting old friends in the vicinity of Albany, N. Y., and inspecting telephone and telegraph offices and equipment ith a view to taking back to Panama some ideas for use in his work on the railroad. Mr. Henkel has a large fund of interesting experiences of life in connection with the building of the canal and railroading on the Isthmus.

SAN FRANCISCO, CAL.—The following promotions have been announced by the Pacific Telephone & Telegraph Co.:

F. L. McNally, district commercial superintendent at San Francisco, transferred to the Seattle district in the same capacity to ed by T. F. Delury, for many years manager and district superinfill the vacancy made by the death of P. J. Lynch. He is succeedtendent of the Oakland district.

H. C. Brownlee, formerly city commercial superintendent at San Francisco, succeeds Delury. Maynard Bailey, formerly commercial manager of the Oakland exchange, will succeed Brownlee as city commercial superintendent, and B. A. Glover relieves Bailey.

A banquet was tendered the officials effected by the changes at the Hotel Bellevue in San Francisco on July 6th. Those who participated are: F. L. McNally, H. McBirney, L. S. Hamm, A. B. Currier, Frank Cassatt, G. V. Ellis, William Weitzenberg, William J. Cleary, J. L. Fallon, W. M. Williams, F. E. Clodi, H. C. Cheek, A. B. Cooper, G. L. Springer, Frank Lukenbell, P. E. Davis, L. d'Obrian, R. N. Lake, Elton Lambert, W. S. Grattan, A. C. Calendar, William Petherick, H. C. Brownlee, T. F. Delury and J. A. Halliday.

OBITUARY.

WM. H. MERRILL, at one time manager for the Bell Telephone Co. at Geneva, N. Y., died a short time ago.

T. S. CHITTENDEN, president of the Ripon, Wis., Telephone Co., died at Ripon as the result of injuries in an automobile accident.

EDWARD C. MOODY, manager of the Bell Telephone Co. at Ironton, Ohio, and later promoted to the office at Mansfield, died recently, at Columbus, O.

L. L. BLACK, manager of the Maquoketa, Ia., exchange of the Iowa Telephone Co., has the sympathy of his friends in the field in the loss of his wife, who died recently.

W. B. KING died at Portland, Ore., at the age of sixty-eight years. Mr. King was born in 1843, at Pilmer, Mass., coming to Portland in 1871. He was at one time president and general manager of the Pacific States Telephone Co., but resigned that position about twelve years ago.

WILLIAM N. ESTABROOK, Elmira, N. Y., died unexpectedly from valvular heart disease in the directors' room of the Elmira Mechanics' Society, of which he was president. Mr. Estabrook for many years had been a member of the board of managers of New York State reformatories, and was one of the best known business men in that part of the state. He established telephone systems in southern New York and northern Pennsylvania, and for many years was president and general manager of the New York & Pennsylvania Telephone & Telegraph Co., now part of the New York Telephone Co.

NEW COMPANIES.

PUEBLO, COLO.—Articles of incorporation have been drawn for the Pueblo & Southeastern Telegraph & Telephone Co. The incorporators are the Tallmadge brothers and associates in the Pueblo-Rocky Ford land and irrigation companies. The telegraph and telephone lines have been built and connect Wilson and the ranches in the surrounding territory.

ROCKLAND, COLO.—The Rockland Telephone Co. has been incorporated. Capital $10,000. Incorporators: G. W. Morse, R. V. Loyd, Fred T. Schulz of Jefferson County.

DOVER, DEL.—The State Department of Delaware issued a certificate of incorporation to the Richey Telephone Lock and Call Register Co. The concern will carry on the business of manufacturing and dealing in improved telephone locks and call registers. The incorporators are Charles B. Richey and Edward H. Booth of Washington, D. C., and Robert T. Ward and Wilton Nicolls of Baltimore and Harry T. Davis of Wilmington. The capital stock is $100,000.

KNOB LICK, KY.—L. E. Ball, R. T. Pedigo, H. S. Tobey, J. H. Lee, R. C. Lambrich, and E. J. Gaddis, are the incorporators of the Phoenix Telephone Co. Capital, $600.

BERRIEN SPRINGS, MICH.—The Berrien Springs Home Telephone Co. has been incorporated by William H. Fox, Charles E. Garmon, George A. Briggs, and George W. Brown. George A. Briggs is president; Charles E. Garmon, vice-president, and George W. Brown, secretary and treasurer of the new company. Mr. Briggs is a well known manufacturer of telephone equipment, and president of the Chicago Telephone Supply Co. Mr. Brown is secretary of the same company. Mr. Fox will be manager of the local company.

LAKE CHARLES, LA.—The charter of the Elton Telephone Co., Ltd., was filed. Capital, $5,000, par value of shares, $25.

COLOMA, MICH.—The Coloma Telephone Co. has been incorporated recently with a capital of $5,000.

DIMONDALE, MICH.—The Eaton County Telephone Co. has been incorporated by C. S. Hull, T. S. Reynolds, J. B. Sechman, E. A. Lundberg, Benjamin Fry and F. E. Phinney, all of Windsor township.

NORTHPORT, MICH.—The Farmers Telephone Co. has been organized. Capital $400.

KELLOGG, MINN.—The Greenfield Farmers' Telephone Co. has been organized recently with a capital of $10,000.

SWANVILLE, MINN.—The Morrison & Todd County Farmers' Telephone Co. has been organized, with a capital of $5,000. The incorporators are L. J. Johnson, J. W. Strom, James Edwards, Lewis Olson and Leroy Chase, all of Swanville, Minn., R. F. D. No. 3.

HEDGESVILLE, MONT.—H. W. Bangert and Alfred Bonchard, and E. B. Broadman, of Broadview, are the incorporators of the Treasure State Telephone Co., of Broadview, Yellowstone. The company is capitalized at $25,000, par value of shares, $100. W. C. Husband, of Harlowton, incorporating attorney.

PLATTSMOUTH, NEB.—Articles of incorporation for the Cass County Farmers Mutual Telephone Co., of Louisville, have been filed. Capital, $20,000. Par value of shares, $50.

GREENWOOD, N. Y.—The Jasper & Greenwich Independent Telephone Co. has been organized. Officers are: Seymour W. Dennis, president; A. L. Lewis, Jr., vice-president; E. M. Scribner, secretary and treasurer; F. L. Warriner, Fred McMindes and W. O. W. Clocum, directors.

GARFIELD, OHIO.—The Hardinsburg & Garfield Telephone Co., Garfield, has been chartered; capital $440. Incorporators: John J. Pate, Richard Black, Frank Woods, William Snyder, James Taber and C. F. Black.

HASKEW, OKLA.—The West Union Mutual Telephone Co. has been chartered, capital $3,500. Directors: A. W. McNutt, J. E. Welty, R. K. Stout, J. C. Morris and H. A. Baxley, all of Haskew.

SAVANNA, OKLA.—The Savanna-Colestine Telephone & Telegraph Co. has been chartered. Capital, $5,000. Directors are: W. J. Shepherd, W. J. Fennell, and J. W. Jennings, of Colestine, and L. L. Georgia and Frank Savage, of Savanna.

EUGENE, ORE.—Articles of incorporation have been filed for the Lane County Telephone Co. The capital stock of the organization was placed at $48,000. The stockholders comprise the leading farmers of that vicinity, headed by Ross Matthews of Thurston.

BREEZEWOOD, PA.—The McConnellsburg & Breezewood Telephone Co., with a capital of $15,000, has been organized by: Amos Hixon, Crystal Springs; Jno. N. Hixon, Akersville; J. F. Poe, Breezewood; Ger. A. Harris, McConnellsburg, and J. M. McKibbons, Buck Valley.

DELTA, PA.—Delta Telephone Co. has been organized recently by Fred N. Ramsey, Delta; E. W. Keyset, Bridgeton; Jacob E. Weaver, York. The capital stock is $10,000.

LANDSDALE, PA.—The Kulpsville Rural Telephone Co. has been organized recently through Towamencin and Worcester townships, Montgomery county. It will be connected with the Landsdale exchange.

MIDLAND, VA.—The Fauquier Mutual Telephone Corporation has been incorporated with $5,000 capital stock. The officers are: G. H. Armstrong, president; H. S. Russell, secretary; C. W. O'Roark, treasurer.

SCOTTDALE, PA.—Farmers in eastern Upper Tyrone township and western Bullskin township have organized a farmers' telephone company and will at an early date construct a line from Scottdale to Cross Roads, Prittstown and Iron Bridge. A company has been formed with John Truxal as president, Ernest Overholt as secretary and Albert Truxal as treasurer.

COLUMBIA, S. C.—The Long Cane Telephone Co., in Edgefield county, has been chartered with a capital of $1,000. B. E. Sawyer and J. K. Allen are president and vice president respectively, and J. H. Cogburn is secretary.

ALPINE, TEX.—The Alpine Telephone Co., of Alpine, has been incorporated with a capital stock of $15,000. J. E. Mills, W. F. McGaughey and others are incorporators.

GEORGETOWN, TEX.—The Georgetown Telephone Co. was reorganized recently and the following officers elected for the ensuing year: Fred B. Robinson, of Waco, president; Mrs. F. B. Robinson, vice-president; Mrs. J. M. Daniels, secretary and treasurer. Mrs. Daniels succeeds her deceased husband who was secretary and manager at the time of his death. The appointment of Mr. L. C. Ketcham as manager was ratified. The company is now installing a new eight hundred line switchboard. An all night service will be commenced when the new board is installed.

OAKESDALE, WASH.—The Oakesdale Home Telephone Co. has just been organized here. C. G. Mead, special agent of the Interstate Consolidated Telephone Co., with a number of local business men and ranchers have completed arrangements for the formation of the new company. The capital stock is to be $10,000. The following are trustees: A. G. Woodward, Ed. Roberts and J. W. Martin, cashier of National bank of Oakesdale. The Interstate Consolidated Telephone Co. will build a trunk line connecting with its trunk line at Mount Hope, Wash.

ELECTIONS.

CAMAS PRAIRIE, IDAHO.—Officers and directors of the newly incorporated Camas Prairie Mutual Telephone Co. are: J. L. Baxter, president; J. O. Couch, vice-president; V. E. Cunningham, secretary; J. D. Mink, treasurer. The above with L. L. Goff, Dave Jarron and J. W. Minear constitute the board of directors.

FREEPORT, ILL.—The Stephenson County Telephone Co. held its annual stockholders' meeting and re-elected the directors and officers as follows: Dr. D. C. L. Mease, president; W. A. Hance, vice president; E. T. Morse, treasurer; Chas. D. Knowlton, Wm. O. Wright, T. K. Best, F. A. Read, Douglas Pattison and L. A. Herrick, secretary and manager. The financial figures, although not yet completed for the year, will show the best year the company has had, with 300 telephones gained, amounting now to about 2,850 city telephones in service, as compared with about 700 Bell patrons.

SUBLETTE, ILL.—The Farmers' Telephone Co. held its annual meeting and elected new officers for the coming year, as follows: George B. Theiss, president; P. H. Kolde, vice-president; S. J. Hoffman, secretary and treasurer.

NASHVILLE, ILL.—The Washington County Mutual Telephone Co. elected the following officers at a recent stockholders' meeting: President, Isaac Reidelberger; vice president, James Edwards; secretary, W. W. Jones, and treasurer, James Wilson.

MARSHALLTOWN, IA.—At a special meeting of the stockholders of the Merchants, Mechanics and Farmers Telephone Co., N. D. Smith, secretary of the company, resigned, and F. E. Peek was elected secretary to succeed him.

VILAS, IA.—At the annual meeting of stockholders of the Vilas local telphone company, the following officers were elected: President, J. D. Vroom; vice-president, Peter Kreusher; secretary-manager, Wm. Hepner; treasurer, J. H. Matheny.

HAVERHILL, KAN.—The following directors were elected by the stockholders of the Haverhill Co-operative Telephone Co.: A. J. Ryan, D. C. Gamble, G. W. Leedom, A. Auer, Harry Richardson, C. S. Shriver, Carl Semisch and J. W. Brown.

RISING SUN, MD.—The following officers and directors were elected by the Cecil Farmers Telephone Co.: President R. K. Rawlings, Woodlawn; first vice president, Elwood Balderston, Colora; second vice president, B. Wayne Reynolds, Rising Sun; secretary, Cecil E. Ewing, Rising Sun; treasurer, J. T. C. Hopkins, Jr., Port Deposit; James H. Maxwell, Rising Sun; William M. Pogue, Rising Sun; E. L. Duyckinck, Rising Sun; C. R. Biles, Blue Ball, and Joseph T. Grove, Zion.

BLOOMINGDALE, MICH.—At the annual meeting of the Bloomingdale Telephone Co., the following officers were elected for the ensuing year: President, Charles Linton; vice-president, A. field. Directors are E. A. Haven, Thomas Rogers, C. J. Lilly, G. D. Scofield and C. B. Stockham. A new switchboard capable Hodgeman; secretary, Wayde Scott, and treasurer, E. J. Merri- of taking care of the increased business has been ordered.

MASON, MICH.—Stockholders of the Wheatfield Center Telephone Co., held their annual meeting at Wheatfield and elected officers for the ensuing year, as follows: President, Andrew Stoffer; secretary, Willard Reeves; treasurer, Harvey Cole; manage, Martin Merrifield.

HALE, MO.—The Missouri Midland Telephone Co. held its annual meeting at Hale. The following officers were elected for the ensuing year: P. C. Green, president; S. Bartlett, vice-president; G. A. Marple, secretary and treasurer; Warren Forsythe, John Steel, F. W. Rickenbrode and J. S. Gibson, directors.

HOLMES CITY, MINN.—The Eagle Telephone Co. has been chartered by the secretary of state. Capital, $5,000. The incorporators are: J. O. Lewis, Farwell; Peter M. Hjerlm, Peter Hoglin, John Bergstrom, Gust M. Johnson, Andrew Sodergren, and Per. Hanson, of Alexandria.

DILLER, NEB.—The stockholders of the Diller Telephone Co. held their annual meeting and elected the folowing officers: President, E. L. Loock; vice president, Clark Wells; secretary, A. L. Tintsman; treasurer and collector, O. B. Hill. The company now has about 525 telephones in Gage and Jefferson counties and an 8 per cent dividend was declared. The company is incorporated at $25,000 with $19,000 paid up

SANTA FE, N. M.—Stockholders of the New Mexico Telephone Co. elected the following directors: E. J. DeArcy, John K. Stauffer and Mrs. Irma DeArcy. The directors elected the following officers: President, E. J. DeArcy; vice-president, John K. Stauffer, and secretary, Mrs. Irma DeArcy.

CANTON, N. Y.—At the annual meeting of the Canton and Leroy Telephone Co., W. F. Lawrence, A. R. Palmer, Henry Duart, A. Seeley, C. M. Fitzwalker and Fred Newell were elected directors.

HILLSDALE, N. Y.—Alex. T. Shults, F. W. Simon, Wallace D. Haun, W. H. Haun, W. A. Jones, S. W. Jones, M. H. Cole, W. A. Jordan, E. Best, and Henry Niver, of Hillsdale, are the incorporators of the West Hillsdale Telephone Co. Capital, $1,250.

RED BLUFF, CAL.—The Tehama County Telephone Co. at its annual stockholders' meeting re-elected the same board of directors that had served during the past year, as follows: C. W. Million, J. P. Tait, J. J. Worthington, G. A. Barcelaux, S. E. Ayer, E. L. Sisson and H. P. Andrews. The following officers were elected: President, J. J. Worthington; vice-president, E. L. Sisson; secretary and treasurer, H. P. Andrews.

BUCKSTOWN, PA.—The Central Telephone Co., of Somerset county, held its annual election of officers and directors recently. Prof. A. I. Mock was elected president; J. M. Wagner, vice-president; Washington Custer, secretary, and J. C. Lambert, collector and treasurer. Jacob McGregor, F. M. Manges, A. I. Mock, J. M. Wagner, Washington Custer, Daniel Wagner and J. H. Reitz were chosen directors. The company now has lines connecting Hooversville, Windber, Hagevo, Shanksville, Buckstown, Daley, Crumb, Reitz and other places.

BIRMINGHAM, O.—The stockholders of the River Side Tele-

phone Co. elected the following officers: C. A. Heald, president; J. Green, vice-president; C. Schisler, treasurer; W. P. Funk, secretary; C. A. Heald, general manager. Directors, C. A. Heald, W. P. Funk, C. Schisler, O. B. Haise, J. Green, V. Henry, C. Grenzelach.

MT. VERNON, OHIO.—At the annual meeting of stockholders the Mt. Vernon Telephone Co. elected the following board of directors for the ensuing year. Frank L. Beam, W. P. Bogardus, Henry C. Devlin, P. S. Kelser, E. O. Arnold, B. D. Herron and Rev. R. G. McClelland. The board of directors re-elected officers as follows: President, Frank L. Beam; vice president, W. P. Bogardus; secretary, Henry C. Devlin; treasurer, P. S. Kelser.

SIDNEY, OHIO.—The stockholders of the Farmers' Telephone Co. elected the following officers: Orrin C. Staley, president; J. H. Milhouse, vice-president; Charles F. Snyder, secretary, and T. M. Beamer, treasurer.

SADORUS, ILL.—At a meeting of the Sadorus Telephone Exchange the following officers were elected for the coming term and duly installed: President, E. B. DeLong; treasurer, A. G. Lewis; secretary, Ira Craw; manager, Henry Hale.

VILLISCA, IA.—Newly elected officers of the Villisca Mutual Telephone Co. are: A. J. Williams, president; John Mullen, secretary; Monroe McCoy treasurer. All were re-elected.

HASKEW, OKLA.—The West Union Mutual Telephone Co. has been organized and incorporated. Capital, $3,500, par value of shares, $35. J. E. Raper, Geo. H. Welter, and J. C. Morris are the incorporators.

KOWANA, OKLA.—The Corner Telephone Co. has been chartered. Capital stock $500. John T. Robnett, William I. Walker and Harve McFarland are the organizers.

HAYTI, S. D.—The Hamlin County Farmers' Telephone Co. elected the following officers at a recent meeting of the directors: Wm. Trumm, Hayti, president; P. O. Svanari, Nordeen, secretary; Edward Arzberger, Hazel, treasurer; and A. E. Everson, of Bryant, and N. E. Knight, of Hazel, directors.

MONTICELLO, WIS.—The following officers were elected by a group of Mt. Pleasant township farmers who are organizing to build a system: President, M. H. Stauffacher; vice-president, F. R. Holcomb; secretary, H. E. Babler; treasurer, J. H. Figi; lineman, Albert Marty.

PRINCETON, WIS.—Stockholders of the Princeton Telephone Co. elected the following directors: Fred Page, Jul Kelm, Wm. Beyer, Aug. Kohnke and Albert Krueger. Secretary, Albert Marks; treasurer, Sam Kohnke.

FINANCIAL.

GALESBURG, ILL.—Officers of the Mutual Telephone Co. have filed with the local recorder a certificate of an increase of stock, making the capital stock $40,000 instead of $15,000, and the number of shares 400 instead of 300. The value of the new shares will be $100 as against $50.

MILLEDGEVILLE, ILL.—The Milledgeville Mutual Telephone Co. has recently increased its capital stock from $10,000 to $13,000.

FT. WAYNE, IND.—Eight thousand dollars' worth of bonds have been taken up by the Farmers' Telephone Co., of Columbia City.

LANSING, MICH.—The Wexford County Independent Telephone Co., Sherman, increased its capital stock from $3,000 to $4,000.

MOUNT UNION, PA.—The directors of the Orbisonia Telephone Co., R. H. Mattern, president, is making great progress. It has about $20,000 of stock issued and it is the desire of the company to increase the stock to $25,000.

MONROE, WIS.—The United Telephone Co. has increased its capital stock from $25,000 to $75,000.

SAWYER, WIS.—TheSawyer Western Telephone Co. has amended its charter, increasing the capital from $600 to $2,000.

SHEBOYGAN, WIS.—Mosel & Centerville Telephone Co. recently increased its capital stock from $15,000 to $25,000.

CONSTRUCTION.

HARTMAN, ARK.—The Logan-Farnsworth Telephone Co. is installing an exchange system in Hartman. A common battery switchboard has been ordered.

SOUTH PASADENA, CAL.—The Home Telephone Co., of which A. B. Cass is president, will install a new telephone system and plant in that city, at an approximate cost of $30,000. Work will be commenced very soon and rushed to completion.

HARTFORD CITY, IND.—The Hartford City Telephone Co. will spend approximately $10,000 on its wire system this summer. Wherever possible, poles will be placed in the alleys and cables will replace the open wires. The work is made necessary by the increase in business.

BATAVIA, ILL.—The Inter-State Telephone Co. is rebuilding its line from Batavia to Geneva. The line is also used by the county for a power-transmission line to the county almshouse and the cost will be shared.

HOMER, ILL.—The Douglas County Telephone Co. will build a new line from Homer by way of Sidney to Champaign. A direct line is also being built from Homer to Danville.

SURPRISE, ILL.—The Surprise Telephone Co. will soon be located in a new telephone exchange. The company is having constructed a building of cement blocks. This company was organized in 1903, has 1,600 subscribers, and exchanges in Davis City, Shelby, Bellwood, Surprise, Brainard, Dwight, Rising City, Garrison, and Bruno. D. L. Sylvester is president of the company.

FREDONIA, KAN.—At the annual meeting of the stockholders of the Fredonia Co-operative Telephone Co. it is voted to construct a building. A lot has been purchased. The system will also be changed to cable, and later common battery equipment will probably replace the present magneto board.

BURLEENE, MINN.—W. E. Hutchinson, of Long Prairie, is interested in the installation of a telephone line at this point.

GREAT FALLS, MONT.—The Smith River Telephone Co., which has been taken over by the Independent Telephone Co., has been connected at Ulm. Fifteen miles of new line nave been built.

NEVIS, MINN.—Plans are being made to build a new line to be known as the Southwest line.

CAMERON, MO.—The Clinton County Mutual Telephone Co. is building a new line between Cameron and Plattsburg. Connections will also be made with Osborn.

TIERRA AMARILLA, N. M.—The Board of County Commissioners of Rio Arriba county has granted the La Belle Land & Development Co. a franchise to construct and operate a system of telegraph and telephone lines throughout the county. The work of construction is to be started within 60 days, and the line between Espanola and Chama is to be rushed to completion at once. The lines will run from Chama through Parkview, Tierra Amarilla, Abiqui El Rita, Oja Caliente, Chamita and Espanola to Santa Fe.

OKLAHOMA CITY, OKLA.—The Oklahoma Home Telephone Co. is installing a telephone system in Lucien.

PRAIRIE CITY, ORE.—Construction work on a new telephone line from Austin to Canyon City will be completed soon, according to Manager J. K. Klink. The cost of the extension is $20,000. This will give eastern Oregon direct communication with Baker.

DOYLESTOWN, PA.—The Keystone Telephone Co. will in a short time open up a new territory through Erwinna, Kintersville, Ottsville, Sundale, Harrow, Pipersville, Tinicum, Uhlertown, Ferndale and Revere. At or about the same time they will connect with Frenchtown, Lambertsville, Flemington, Pattenburg, and Clinton, N. J. This will open up a valuable territory and give it convenience of this kind long needed.

PHILADELPHIA, PA.—The American Union Telephone Co. has begun the work of erecting new cables in Mercer.

SELINSGROVE, PA.—Manager Eyer of the Middle Creek Valley Telephone Co. is contemplating to build a line from Port Trevorton to McKee's Half Falls. Wires will be strung to McClure.

VOLANT, PA.—The Plain Grove Telephone Co. has recently rebuilt a part of its original lines, using much heavier poles. The line replaced was one of the first erected by the company.

WAYNESBURG, PA.—The Greene County Telephone & Telegraph Co., B. N. Lewis, general manager, is making plans to construct a trunk line from Waynesburg to Rogersville and Greysville, Green county, Pa. Mr. Lewis is now giving out orders for the different kinds of material needed.

WHITE POND, S. C.—White Pond Telephone Co., D. L. Weeks secretary, will construct a system of from 25 to 50 miles, and

OKANOGAN, WASH.—A telephone line is being constructed from Miles across the south half of the Colville Indian reservation to the Indian sub-agency on the Okanogan. The work is under the direction of Zack Sanders, head of the Indian reservation forest guards. The Indian department will have a crew of forest rangers on the reservation this year.

IRON RIVER, WIS.—George S. Barnes is interested in the building of a new line, to be 18 miles long.

FRANCHISE.

PLUMMER, IDA.—A franchise has been granted to C. G. Mead by the town council to install a local and long distance telephone system here. Mr. Mead, who is connected with the development department of the Interstate Consolidated Telephone Co., with headquarters at Spokane, says that immediate preparations will be made to construct a modern and up-to-date telephone service in this and the surrounding vicinity.

UNDERGROUND.

OIL CITY, PA.—The Petroleum Telephone Co. is placing 4,000 feet of conduit underground. Approximate cost, $12,000.

KANSAS CITY, MO.—The Bell Telephone Co. is taking its poles from the business streets of Independence. Conduits will now carry the telephone wires.

MISCELLANEOUS.

McLEAN, ILL.—The Palmer Electric Co. sold its telephone system to Baker Bros.

KENESAW, NEB.—Fire swept through the business section, causing a total loss of $12,500. The Independent Telephone Co.'s office was destroyed, the loss amounting to $1,500.

LINCOLN, NEB.—Authority has been granted by the state railway commission to the York County Telephone Co., York, to issue $35,000 of new stock for the purpose of taking over the Bradshaw Telephone Co.'s plant, business and organization.

BUDA, TEX.—The Buda Telephone Co. has been organized and has purchased the local telephone exchange from G. T. Howe. The capital stock is $5,000 and the officers are: W. S. Birdwell, president; L. L. Carter, vice-president; C. C. Huddleston, secretary-treasurer.

In the Rural Line Districts

The Arapahoe telephone company has been working extra men this week stretching wires and replacing poles that have been damaged by the spring winds. It will require several days to place the lines in first-class working order.—*Arapahoe (Neb.) Mirror.*

Wm. Murdock, of Clifton, "Bill," has bought the Clyde telephone exchange. From bad to worse he is hastening; legislature, newspaper, telephone, where's the bottom?—*Clay Center (Kan.) Times*

If you live on a rural line you will find a considerable task to keep up your work and listen to all the conversation that is passed over the wires. Some women do it, however, because they are energetic and attend to business.

The phone should be conveniently located. When the phone rings make a break for it. If your number is three rings and central rings six, go anyhow. Central may make mistakes. so don't take any chances. Apt as not the person ringing may be lonesome and had as soon as not talk to you as anybody. After you find out they want someone else, stay and listen anyway. They might be talking about you.

The new switchboard at Central is giving good work, and the switch-tender, Robert Davis, takes great pride in the work. —*Cross Timbers Letter in Hermitage (Mo.) Index.*

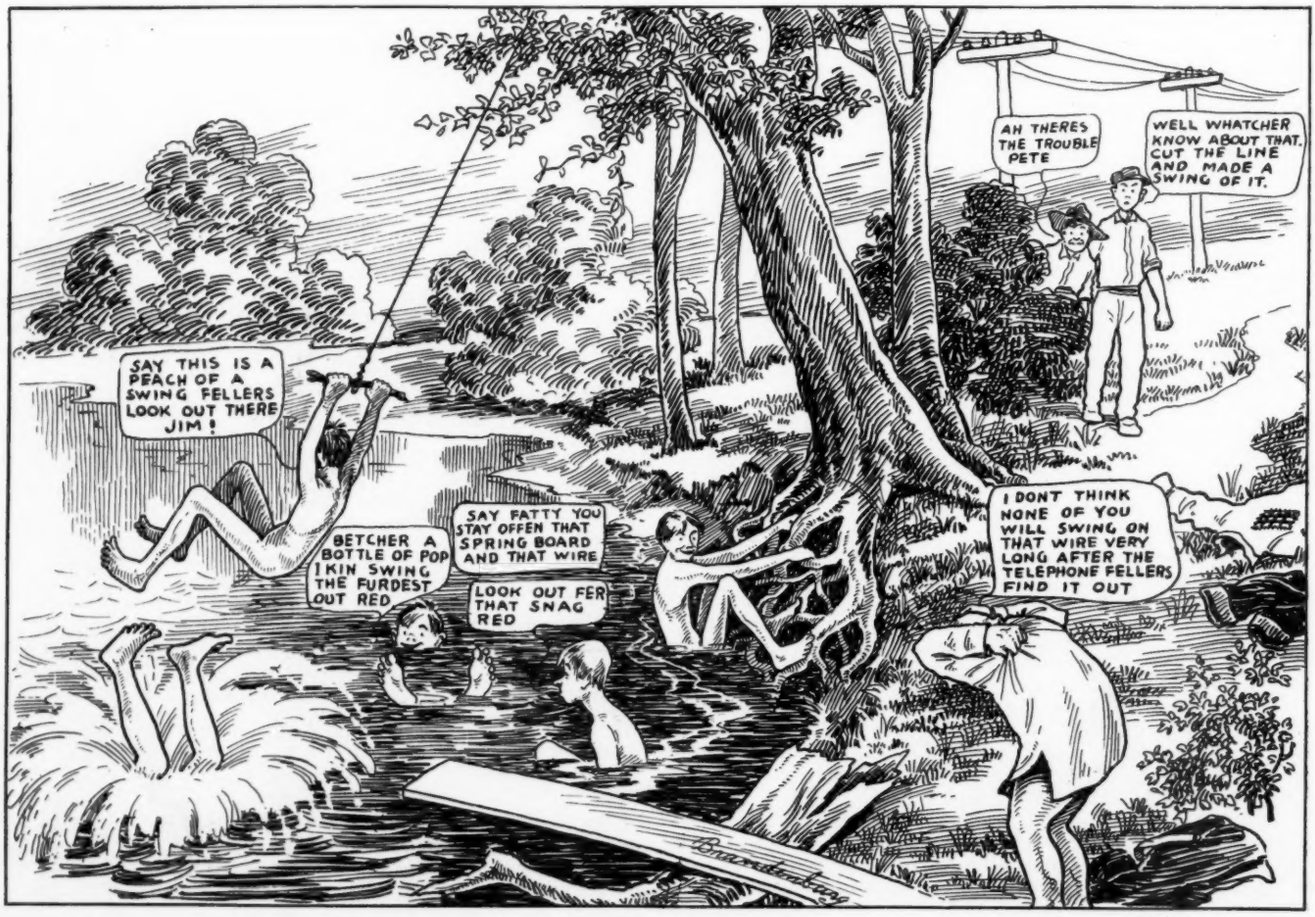
If you are on a party line and discover that two women are gossiping over the wire, don't attempt to butt in and make them stop, not even if you are in need of a doctor for you can't do it. My experience is that when two old windy sisters on a party line once get astraddle of the wire, nothing short of a stroke of re-enforced lightning will ever shake 'em loose under an hour. I had rather try to untie a knot in a wet rope with a bone felon on each finger.—*Lawton (Kan.) Hornet.*

Sam Muxlow is expected soon to take charge of the lines and telephones of Central Telephone Co. It is hoped that this system will be usable in the near future.—*Hill City (Kan.) New Era.*

Mr. Crippen, the manager of the Bell Telephone Co., was in town Friday and Saturday taking up the old transmitters and receivers.—*Matfield Green Item in Cottonwood Falls (Kan.) Leader.*

The Delavan Telephone Co. has moved into its new building. The work of transfer from the old home was done by the president, W. W. Ray.—*Delavan News in Council Grove (Kan.) Guard.*

Frank Britton, president of the Calhoun Independent Telephone Co., is reported having resigned and left a fat job for some one lucky enough to become his successor, because of securing better service at reasonable rates on the Adamson lines from Olney, and on Tuesday a few whole lines east cut loose from this switchboard and went to Claremont. A few more didos like these, such as are threatened, will probably cause the Independent folks to wonder "where we are at."—*Olney (Ill.) Advocate.*


AH THERES THE TROUBLE PETE
WELL WHATCHER KNOW ABOUT THAT. CUT THE LINE AND MADE A SWING OF IT.
SAY THIS IS A PEACH OF A SWING FELLERS LOOK OUT THERE JIM !
BETCHER A BOTTLE OF POP I KIN SWING THE FURDEST OUT RED
SAY FATTY YOU STAY OFFEN THAT SPRING BOARD AND THAT WIRE
LOOK OUT FER THAT SNAG RED
I DONT THINK NONE OF YOU WILL SWING ON THAT WIRE VERY LONG AFTER THE TELEPHONE FELLERS FIND IT OUT

Telephone communications between Reynolds and Bloomfield was suddenly cut off last Wednesday and the local manager was at a loss to know what had happened. He started two men out to find the cause, and when about two miles east of town where the line crosses Clear Creek the trouble was discovered. Some boys had cut the wire and made a swing of it from which they could dive into their swimming hole. They were enjoying the swing immensely when the telephone men appeared and put an end to the fun.—*Bloomfield (Va.) Sun.*